DOCUMENT RESUME

ED 025 701 AC 003 500

[Managerial and Supervisory Educational Needs in Business and Industry in Pennsylvania]

Pennsylvania State Univ., University Park. Continuing Education.
Report No-M-63-M-81
Pub Date 68
Note-704p.
EDRS Price MF-$2.75 HC-$35.10
Descriptors-*Administrative Personnel, Banking, *Business, Construction Industry, *Educational Needs, *Industry, Insurance Occupations, Manufacturing Industry, Research Projects, Telephone Communications Industry, Transportation
Identifiers-*Pennsylvania

This document presents self-perceived needs of managers and first line supervisors in the following Pennsylvania industries: chemical, rubber, and plastic products; banking; apparel, textile, and leather; construction; department stores; electrical machinery; fabricated metal products; insurance; machinery (except electrical); transportation equipment; gas and electrical utilities; petroleum refining; primary metals; professional, scientific, and controlling instruments; railroads; stone, clay, and glass products; telephone and telegraph; and transportation. Recommendations based on the information obtained through questionnaires are offered to the university, business and industry, individual managers and supervisors, and professional associations. (nl)

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE BANKING INDUSTRY IN PENNSYLVANIA

M-63

TO
UN
EDU
THE
THE

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

"PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY Thomas Hammonds TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE U.S. OFFICE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER."

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE BANKING INDUSTRY IN PENNSYLVANIA

M-63

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

- Top Management. 2
- Middle Management 2
- First-Line Supervision. 3

TOP MANAGEMENT 3

- Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 8

- Educational Needs Within Areas of Managerial Responsibility 8
- Background Information of Middle Managers 15
  - Personal, Educational, and Professional Background. 15
  - Methods of Updating. 16
  - Company Attitudes Toward Education 18

FIRST_LINE SUPERVISION 20

- Educational Needs 20
- Background Information of First-Line Supervisors. 21
  - Personal, Educational, and Professional Background 21
  - Methods of Updating. 22
  - Company Attitudes Toward Education 25

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN BANKS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 27

- Top Management. 27
- Middle Management 28
- First-Line Supervision. 29

RECOMMENDATIONS. 30

- For the University. 30
- For Business and Industry 30
- For the Individual Manager and Supervisor 31
- For Professional Associations 31

LIST OF TABLES

PAGE

1. Top Management — General Management. 4
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 5
4. Top Management — Economics 5
5. Top Management — Quantitative Methods Applied to Business and Industry. 5
6. Top Management — Industrial Relations and Personnel Management . 6
7. Top Management — Financial Management. 6
8. Top Management — Manufacturing and Production. 6
9. Top Management — Marketing 7
10. Top Management — International Management. 7
11. Middle Management — General Management 9
12. Middle Management — Behavioral Science and Management. 9
13. Middle Management — Communication. 10
14. Middle Management — Economics. 10
15. Middle Management — Quantitative Methods Applied to Business and Industry. 11
16. Middle Management — Computer Operations and Data Processing. . . 11
17. Middle Management — Industrial Relations and Personnel Management. 12
18. Middle Management — Financial Management 12
19. Middle Management — Manufacturing and Production 13
20. Middle Management — Marketing. 13
21. Middle Management — Sales Management 14
22. Middle Management — International Management 14

PAGE

23. Middle Management — Research and Development 14

24. Middle Management — Major Fields of Study of College Graduates . 15

25. Middle Management — Major Areas of Work. 15

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 16

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 16

28. Middle Management — Sources of Information Used in Updating. . . 17

29. Middle Management — Preference for Media of Course Presentation. 18

30. Managers' Perception of Company Policy Toward Professional Development 18

31. Middle Management — Proportion of Tuition Paid 19

32. Middle Management — Maximum Amount of Tuition Paid Per Year. . . 19

33. First-Line Supervision Training Needs 21

34. First-Line Supervision — Major Fields of Study of College Graduates 22

35. First-Line Supervision — Major Areas of Work 22

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 23

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 23

38. First-Line Supervision — Sources of Information Used in Updating. 24

39. First-Line Supervision — Preference for Media of Course Presentation. 24

40. Supervisors' Perception of Company Policy Toward Professional Development 25

41. First-Line Supervision — Proportion of Tuition Paid. 26

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year. 26

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE BANKING INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 259 managers and supervisors from 24 Banks in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervison. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, seven were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 13 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six of 54 listed courses in the area of general management and communication. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need five of the listed courses. (Page 8)

The educational level was good with 29 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for one out of 16 courses. (Page 20)

Twenty-four percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Banks, 58 top managers from 24 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the area of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses with a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Long-range Planning and Forecasting for Corporate Growth. . .	72
Overall Strategy and Goals.	67
Communication in the Organization	64
Management Development.	61
Impact of Computer Technology	58
Effective Speaking.	58
Policy Formation.	52

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications	94
Effective Speaking	85
Effective Reading Skills	82
Improving Decision Making of Managers	78
Communication in the Organization	73
Listening Skills	70
Performance Appraisal and Counseling Techniques	69
Working Effectively with Individuals and Groups	66
Impact of Computer Technology	63
Human Aspect of Management	60
Fundamentals of Financial Reporting and Statement Analysis	60
Management Development	59
Management Reporting Systems	55

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=57)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Long-range Planning and Forecasting for Corporate Growth	72	95	28
Overall Strategy and Goals	67	92	35
Impact of Computer Technology	58	86	63
Policy Formation	52	88	39
Management Reporting Systems	38	78	55
Industrial Organization and Administration	37	72	33
Effective Utilization of Manpower Resources and Allocation	36	68	34
Improving Decision Making of Managers	35	83	78
Managing Major Change in Organizations	26	64	19
Management of Research and Development	23	56	31
Impact of Science and Technology on Business Management	23	55	30
Impact of Government Legislation and Controls on Business	22	55	15
Ethical Considerations in Business	21	59	35
Impact of Multinational Aspects of Planning and Control	2	10	6

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=55)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	64	97	73
Working Effectively with Individuals and Groups	49	85	66
Managerial Motivation.	44	83	48
Human Aspect of Management . . .	38	78	60
Political, Social, and Cultural Trends and Their Impact on Business Management.	24	71	37
Creativity and Innovation. . . .	23	52	33

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=55)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	58	78	85
Effective Written Communications	46	84	94
Listening Skills	42	78	70
Effective Reading Skills	34	74	82

TABLE 4

ECONOMICS
(N=53)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	45	71	30
Comparative Economic Systems . .	15	47	19

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=47)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	28	54	34
Survey Course on Quantitative Methods.	18	56	24

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=52)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	61	81	59
Performance Appraisal and Counseling Techniques.	47	74	69
Incentives	38	65	40
Criteria and Selection of Personnel.	33	68	49
Personnel Policy Affecting Wage and Salary Structure	25	58	31
Personnel Policy Affecting Labor-Management Relations . .	19	42	23
Personnel Policy Affecting Employment Practices	19	40	21

TABLE 7

FINANCIAL MANAGEMENT
(N=53)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	43	69	60
Financial Planning and Forecasting.	41	63	27
Capital Budgeting.	33	56	27
Managerial Accounting and Budgeting.	31	72	39

TABLE 8

MANUFACTURING AND PRODUCTION
(N=46)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	9	24	13
Operations Planning and Control.	7	27	16
Operations Research Applied to Production	0	16	14

TABLE 9

MARKETING
(=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	43	70	33
Production Planning.	18	36	27
Pricing.	14	41	11
Logistics Planning	2	16	7

TABLE 10

INTERNATIONAL MANAGEMENT
(N=46)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	11	44	15
International Economic Analysis.	9	32	11

MIDDLE MANAGERS

In the industrial category of Banks, 39 middle managers from 24 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors.

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communications (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	64
Working Efficiently with Individuals	63
Supervisory Training and Employee Development	59
Effective Communication in the Organization	59
Performance Appraisal and Counseling Techniques	51
Business Letter Writing	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Business Letter Writing	59
Working Efficiently with Individuals	56
Supervisory Training and Employee Development	54
Oral Presentation of Reports	51
Listening Skills	50

The tables following, 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Banking category.

TABLE 11

GENERAL MANAGEMENT
(N=89)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	64	93	37
Working Efficiently with Individuals.	63	93	56
Supervisory Training and Employee Development	59	89	54
Performance Appraisal and Counseling Techniques.	51	84	41
Criteria and Selection of Personnel for Promotion. . . .	45	81	32
Principles and Analysis of Office Systems	33	69	25
Analyzing Organizational Behavior	32	72	24
Impact of Computer Technology. .	30	62	23
Long-range Planning and Forecasting for Corporate Growth .	29	73	13
Impact of Government Legislation and Controls on Business . . .	21	69	17
The Application of Information Technology on Decision Making.	21	51	15
Effective Utilization of Manpower Resources and Allocation	15	53	15
Impact of Science and Technology on Business Management	8	33	11

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=83)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management . . .	34	76	27
Understanding Group Interaction and Behavior	32	60	28
Management Psychology.	30	78	22
Creativity and Innovation. . . .	19	49	18
Impact of Consumer Behavior on Management	17	50	14
Industrial Sociology	10	49	6
Social and Cultural Trends and Their Impact on Business Management	10	46	11

TABLE 13

COMMUNICATION
(N=83)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	59	87	48
Business Letter Writing	50	89	59
Effective Reading Skills	49	78	49
Effective Report Writing	48	79	41
Oral Presentation of Reports	46	87	51
Listening Skills	37	77	50
Conference Leadership	25	59	27

TABLE 14

ECONOMICS
(N=81)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	36	74	17
Fundamentals of Economics	33	64	26
The Economic Systems of the United States	20	61	19
Economics of Production and Cost	9	36	11
Comparative Economic Systems	8	43	14
The Price Mechanism	8	42	9
International Economics	4	31	11
Economics of Technology and Innovation	1	31	6

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=82)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	27	75	21
Review of Basic Mathematics. . .	23	54	36
Statistical Decision Theory. . .	16	50	15
Replacement Management	16	48	11
Statistical Procedures and Methods.	16	39	14
Applying Program Evaluation and Review Techniques (PERT) . . .	9	40	8
Waiting Lines.	8	18	3
Probability Theory	4	20	6
Inventory Management	4	16	4
Linear Programming	3	14	5
Analytic Geometry.	3	14	3
Matrix Algebra	3	7	1
Dynamic Programming.	1	18	5
Calculus of Infinite Series. . .	0	4	1
Calculus of Finite Differences .	0	3	1

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=79)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. . .	37	79	36
Applying the Computer to Problems of Business and Management	33	72	29
Fundamentals of Programming for Computer Operations.	19	59	29
Mathematics for Digital Computers.	8	33	13

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Job Analysis and Job Evaluation Methods.	42	81	13
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	40	68	13
In-plant Training.	37	68	20
Maintaining Efficient and Up-To-Date Personnel Records	28	50	14
Salary and Wage Administration .	25	61	14
Employee Benefit Plans	24	53	12
Management and Labor Relations .	9	23	3
Industrial Safety and Medical Services	3	17	9

TABLE 18

FINANCIAL MANAGEMENT
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	53	94	31
Financial Planning and Forecasting.	53	83	23
Taxes.	43	78	15
Budgets.	41	75	32
Managerial Accounting.	39	73	20
New Developments in Equipment Replacement Policy	19	55	10

TABLE 19

MANUFACTURING AND PRODUCTION
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Automation	22	44	6
Methods Analysis and Work Simplification	16	48	11
Value Analysis	11	22	0
Quality Control.	7	7	7
Organization and Management of Purchasing Operations.	6	25	0
Materials Handling	6	12	0
Production Planning and Control Management	0	24	0
Engineering Economy.	0	18	0
Maintenance Planning and Control	0	7	0
Inventory Management	0	6	0

TABLE 20

MARKETING
(N=21)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	33	47	14
Fundamentals of Marketing. . . .	15	45	15
Marketing Management	11	50	17
Product Planning	11	22	17
Fundamentals of Pricing.	11	17	11
Application of Management Science and Computers to Marketing Problems	6	35	18
Physical Distribution Methods. .	6	12	6

No managers reported any degree of need for two other courses for themselves or for those they supervise.

TABLE 21

SALES MANAGEMENT

(N=24)

	"Should Have" Percent	"Should Have and Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	29	58	17
Training of Field Salesmen . . .	18	36	18
Supervision of Field Salesmen. .	14	33	14
Selection and Evaluation of Field Salesmen	11	32	5
Compensation of Field Salesmen .	10	25	5

TABLE 22

INTERNATIONAL MANAGEMENT

(N=16)

	"Should Have" Percent	"Should Have and Could Use" Percent	"Subordinates' Needs" Percent
Sources of Funds: Financing of Day-to-Day Transactions . .	13	51	6
Monetary Exchange Problems . . .	7	28	0
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	0	27	0
United States Foreign Economic Policy	0	21	0
International Understanding. . .	0	20	0
International Economic Organizations.	0	13	0
Commercial Policy and Trade Control.	0	7	0
International Economic Analysis.	0	7	0

None of the managers indicated any degree of need for two other courses for themselves or for those they supervise.

TABLE 23

RESEARCH AND DEVELOPMENT

(N=16)

	"Should Have" Percent	"Should Have and Could Use" Percent	"Subordinates' Needs" Percent
Supervision and Management of Research Services.	7	20	0
Guidelines for Selecting and Appraising New Projects. . . .	0	25	6
Building Research and Development Teams.	0	21	0
Evaluation of the Research and Development Programs	0	14	14
Planning Budgeting and Control of Projects.	0	14	7

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-nine percent (N=35) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-seven percent (N=86) had completed high school, 30 percent (N=27) had the bachelor's degree, and two percent (N=2) had the master's degree. No one had the doctorate. Twenty-nine percent (N=26) went to business school and two percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration. . . .	15	0
Law.	1	0
Liberal Arts	9	1
Other (not specified).	2	1
Total	27	2

The major areas of work for the middle managers in banks are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	35	42
Finance.	44	51
Marketing and Sales.	3	3
Purchasing and Procurement . .	1	1
Service (yard and labor personnel, etc.).	1	1
Other (not specified).	2	2
Total	86	100

Methods of Updating

Seventy percent (N=60) of the middle managers would take a credit course and 78 percent (N=69) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the bachelor's degree. Ten planned to enroll: three for the associate degree, two for the bachelor's degree and five for the master's. Seven managers planned to study business administration, one law, one liberal arts, and two in other fields which were not specified.

Sixty-one percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	14	26
Job demands no more education	6	11
Cannot afford it	5	9
Can do better on my own	4	7
Not interested	4	7
Live too far from educational center	1	2
Not a high school graduate	1	2
Other (not specified)	19	36
Total	54	100

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=89)

	Number Managers	Percent Managers
Attendance at regional or national meetings of professional societies	49	55
Workshops or seminars on managerial topics	46	52
Company in-service training courses	33	37
Managerial development within company	18	20
Correspondence courses	15	17
Short refresher courses at colleges or universities	13	15
Workshops or seminars in liberal arts or humanities	4	4

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=87)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	59	34	6	1	0
In-plant reports and bulletins . .	51	27	6	6	10
Business reports	50	40	7	2	1
Subordinate-superior discussions or meetings	42	44	11	2	1
Lectures, conferences, workshops and seminars	28	40	17	8	7
Management journals.	27	48	13	8	4
Professional society meetings. . .	26	29	30	13	2
Company in-service courses	19	24	13	26	18
Technical books, reports, abstracts and indexes.	16	33	23	24	4
Scientific and technical journals.	11	29	15	42	3
Manufacturer's literature.	9	24	37	29	1
Use of consultants	6	23	29	37	5
College-university evening courses	3	10	10	67	10
College-university day courses . .	0	3	7	83	7

Middle managers responded to a listing of seven educational media other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=89)

	Number Managers	Percent Managers
Programmed instruction.	41	46
Correspondence courses.	33	37
Educational television.	26	29
Courses recorded on tapes	11	12
Courses recorded on records	10	11
Two-way telephone courses	5	6
Two-way radio courses	2	2
Other (not specified)	4	4

Company Attitudes Toward Education

Of the 83 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 61 percent (N=51) said the superior encouraged them and 37 percent (N=31) said the superior was noncommittal. One person said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=84)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	92	7	0	1
Hold office in professional societies.	87	12	0	1
Attend company training courses.	87	4	0	9
Attend workshops or seminars away from the company. . .	86	10	0	4
Enroll for advanced work . .	77	16	0	7
Write technical and professional papers. . . .	41	29	0	30
Educational leave of absence	16	23	8	53

Sixty-one percent of the middle managers were employed by companies which provided in-service training; 34 percent were not, and five percent did not know. Forty-one percent said the training was entirely on company time, 31 percent said it was partly on company time, 15 percent said it was not on company time, and 13 percent did not know.

Eighty-four percent reported that their company had an educational assistance plan. Fifteen percent said it did not and one percent did not know. Fifty-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	56
About 3/4	2
About 2/3	0
About 1/2	1
About 1/3	1
Less than 1/3	2
Don't know	4
Total	66

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	21
251 - 300	2
201 - 250	0
151 - 200	0
101 - 150	1
51 - 100	3
50 or less	8
Don't know	31
Total	66

When asked about the effect of available company educational assistance in motivating them to undertake further education, 52 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 22 percent said it had no effect. There is an inconsistency here: while 77 percent said the availability of aid motivated them to some extent, only one person was actually enrolled and ten were planning to enroll.

FIRST-LINE SUPERVISION

In the industrial category of Banks, 112 first-line supervisors from 24 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

Educational Needs

The 112 first-line supervisors in the category of Banks were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have", "Could Use," or "Don't Really Need." The one course rated "Should Have" by 50 percent or more of the supervisors was Fundamentals of the Supervisor's Job, 58 percent.

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=110)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . . .	64	58	99	90
Decision Making.	51	48	88	83
The Tools and Techniques of Effective Supervision.	51	47	84	78
Supervisor's Role in Employee Discipline .	44	42	85	81
Inter-Departmental Cooperation	36	34	82	78
Supervisor's Role in Company Economics . .	30	29	78	75
Employee Training and Evaluation				
Evaluation of Employee Performance	45	42	87	81
Employee Training.	41	39	73	69
Safety	7	7	29	29
The Supervisor and the Union				
Grievance Procedure and Arbitration. . . .	10	10	41	40
Labor Relations Legislation.	2	2	13	13
Labor Relations.	1	1	11	11
Developing Those We Supervise				
Human Aspect of Management	50	47	90	84
Leadership	49	45	88	81
Communications	39	38	77	75
Developing the Work Team	38	36	73	69

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Sixty-two percent (N=69) of the first-line supervisors were 40 years of age or younger. Ninety-six percent (N=107) were high school graduates, and 24 percent (N=27) had the bachelor's degree. One person had the master's degree and one had the doctorate. Twenty percent (N=22) had gone to business school and four percent (N=4) to trade school. The major fields of study are indicated in the following table.

TABLE 34
MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's	Number Doctor's
Agriculture	1	0	0
Business Administration . .	16	0	0
Education	1	0	0
Liberal Arts.	6	1	1
Other (not specified. . . .	3	0	0
Total.	27	1	1

The major areas of work for the first-line supervisors in Banks are shown in the following table:

TABLE 35
MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration.	33	31
Finance	59	56
Maintenance	1	1
Marketing and Sales	1	1
Production Control - Records	3	3
Purchasing and Procurement.	2	2
Other (not specified) . . .	6	6
Total.	105	100

Methods of Updating

Sixty-six percent (N=71) of the first-line supervisors would take a credit course and 73 percent (N=81) would take a non-credit course if they were offered locally.

Six of the supervisors were currently enrolled in a degree program, five for the bachelor's degree and one for the doctorate. Seven planned to enroll, two for the associate degree, four for the bachelor's and one for the master's. The major fields of study preferred were: 11 in business administration and one in liberal arts.

For the 80 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	26	33
Cannot afford it	17	21
Job demands no more education	11	14
Not interested	5	6
Not a high school graduate	4	5
Live too far from educational center	4	5
Can do better on my own	1	1
Other (not specified)	12	15
Total	80	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=111)

	Number Supervisors	Percent Supervisors
Attendance at regional or national meetings of professional societies	42	38
Company in-service training courses	40	36
Workshops or seminars on managerial topics	40	36
Correspondence courses	22	20
Short refresher courses at colleges or universities	15	14
Managerial development within company	13	12
Workshops or seminars in liberal arts or humanities	6	5
High school courses to improve job performance	5	5

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=104)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussions with company personnel (informal or formal). . . .	53	37	5	2	3
In-plant reports and bulletins . . .	42	30	10	10	8
Subordinate-superior discussions or meetings.	34	42	18	3	3
Lectures, conferences, workshops, and seminars	27	37	17	11	8
Business reports	24	52	10	11	3
Management journals.	23	37	19	13	8
Company in-service courses	17	29	15	19	20
Professional society meetings. . . .	13	38	9	35	5
Manufacturer's literature.	13	14	24	46	3
College-university evening courses .	13	8	7	59	12
Use of consultants	10	18	23	42	7
Technical books, reports, abstracts, and indexes.	9	26	30	33	2
Scientific and technical journals. .	7	16	24	51	2
College-university day courses . . .	1	2	2	89	6

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=111)

	Number Supervisors	Percent Supervisors
Programmed instruction.	61	55
Correspondence courses.	60	54
Educational television.	32	29
Courses recorded on records	26	23
Courses recorded on tapes	20	18
Two-way telephone courses	11	10
Two-way radio courses	6	5
Other (not specified)	6	5

Company Attitudes Toward Education

A total of 104 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Sixty-seven percent (N=70) said the superior encouraged them; 32 percent said he was noncommittal; and one individual said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY
POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=105)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	94	3	0	3
Attend professional meetings	87	4	0	9
Hold office in professional societies	87	5	0	8
Attend seminars or workshops away from the company.	83	5	2	10
Enroll for advanced work	68	12	3	17
Write technical and professional papers	39	15	2	44
Educational leave of absence	19	11	10	60

Sixty-four percent of the supervisors were employed by companies which provided in-service training; 30 percent said their company did not provide it and six percent did not know. Twenty-nine percent said the training was completely on company time, 23 percent said it was partly on company time, 33 percent said it was entirely on the men's own time, and 15 percent did not know.

Seventy-five percent reported that their company had an educational assistance plan; 18 percent said it did not, and six percent did not know. Fifty-five percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	63
About 3/4	8
About 2/3	0
About 1/2	0
About 1/3	1
Less than 1/3	1
Don't know	2
Total	75

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	18
251 - 300	1
201 - 250	0
151 - 200	1
101 - 150	0
51 - 100	7
50 or less	6
Don't know	40
Total	73

When asked what the effect of available financial assistance was on their motivation to undertake further education, 53 percent of the supervisors said it strongly encouraged them, 30 percent said it partially influenced them, and 17 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 83 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only six of the 111 respondents were actually enrolled and seven were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN BANKS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Banks as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Banks N=58	Total Report N=705
Long-range Planning and Forecasting for Corporate Growth	72	50
Overall Strategy and Goals	67	50
Communication in the Organization	64	59
Management Development	61	53
Effective Speaking	58	50
Impact of Computer Technology	58	*
Policy Formation	52	*
Effective Written Communications	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Banks N=58	Total Report N=705
Effective Written Communications	94	74
Effective Speaking	85	67
Effective Reading Skills	82	62
Improving Decision Making of Managers	78	54
Communication in the Organization	73	65
Listening Skills	70	62
Performance Appraisal and Counseling Techniques	69	57
Working Effectively with Individuals and Groups	66	66
Impact of Computer Technology	63	*
Human Aspect of Management	60	54
Fundamentals of Financial Reporting and Statement Analysis	60	*
Management Development	59	56
Management Reporting Systems	55	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, fifty percent or more of the middle managers in Banks and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Banks N=89	Total Report N=1,202
Management Development	64	66
Working Efficiently with Individuals	63	65
Effective Communication in the Organization	59	64
Supervisory Training and Employee Development	59	53
Performance Appraisal and Counseling Techniques	51	*
Business Letter Writing	50	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Banks N=69	Total Report N=1,202
Business Letter Writing.	59	*
Working Efficiently with Individuals	56	62
Supervisory Training and Employee Development.	54	61
Oral Presentation of Reports	51	*
Listening Skills	50	50
Effective Communication in the Organization.	*	56

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Banks N=112	Total Report N=1,713
Fundamentals of the Supervisor's Job	58	64
Leadership	*	57
The Tools and Techniques of Effective Supervision. . .	*	55
Decision Making.	*	54
Human Aspect of Management	*	53
Communications	*	51

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership - was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent methods of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10 Aircraft, Motors, and Parts
E-11 Chemical and Allied
E-12 Electrical Machinery and Equipment
E-13 Machinery
E-14 Mining
E-15 Paper and Allied
E-16 Petroleum Refining
E-17 Primary Metals
E-18 Professional, Scientific, and Controlling Instruments
E-19 Research and Consulting Laboratories
E-20 Transportation
E-21 Electric Utilities
E-22 Gas Utilities
E-23 Telephone and Telegraph
E-24 Water Utilities
E-53 Construction
E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54 Hospital Administrators
H-55 Nursing Service and Nursing Education
H-56 Supervisory Personnel in the Dietary Department
H-57 Supervisory Personnel in the Engineering and Maintenance Department
H-58 Supervisory Personnel in the Business Office and Purchasing Department
H-59 Supervisory Personnel in the Medical Records Department
H-60 Supervisory Personnel in the Institutional Care Departments
H-61 Personnel Directors
H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CHEMICAL, RUBBER, AND PLASTIC PRODUCTS INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CHEMICAL, RUBBER, AND PLASTIC PRODUCTS INDUSTRY IN PENNSYLVANIA

M-64

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES 2

SUMMARY 2

- Top Management 2
- Middle Management 2
- First-Line Supervision 3

TOP MANAGEMENT 3

- Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT 7

- Educational Needs Within Areas of Managerial Responsibility 8
- Background Information of Middle Managers 15
  - Personal, Educational and Professional Background 15
  - Methods of Updating 16
  - Company Attitudes Toward Education 19

FIRST-LINE SUPERVISION 21

- Educational Needs 21
- Background Information of First-Line Supervisors 22
  - Personal, Educational, and Professional Background 22
  - Methods of Updating 24
  - Company Attitudes Toward Education 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE CHEMICAL, RUBBER AND PLASTIC PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 28

- Top Management 28
- Middle Management 29
- First-Line Supervision 30

RECOMMENDATIONS 31

- For the University 31
- For Business and Industry 31
- For the Individual Manager and Supervisor 32
- For Professional Associations 32

LIST OF TABLES

PAGE

1. Top Management — General Management 4

2. Top Management — Behavioral Science and Management 5

3. Top Management — Communications Techniques 5

4. Top Management — Economics 5

5. Top Management — Quantitative Methods Applied to Business and Industry 6

6. Top Management — Industrial Relations and Personnel Management 6

7. Top Management — Financial Management 6

8. Top Management — Manufacturing and Production 7

9. Top Management — Marketing 7

10. Top Management — International Management 7

11. Middle Management — General Management 9

12. Middle Management — Behavioral Science and Management 9

13. Middle Management — Communication 10

14. Middle Management — Economics 10

15. Middle Management — Quantitative Methods Applied to Business and Industry 11

16. Middle Management — Computer Operations and Data Processing . . . 11

17. Middle Management — Industrial Relations and Personnel Management 12

18. Middle Management — Financial Management 12

19. Middle Management — Manufacturing and Production 13

20. Middle Management — Marketing 13

21. Middle Management — Sales Management 14

22. Middle Management — International Management 14

PAGE

23. Middle Management — Research and Development 15

24. Middle Management — Major Fields of Study of College Graduates 15

25. Middle Management — Major Areas of Work 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education 17

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 17

28. Middle Management — Sources of Information Used in Updating . . . 18

29. Middle Management — Preference for Media of Course Presentation . 19

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management — Proportion of Tuition Paid 20

32. Middle Management — Maximum Amount of Tuition Paid Per Year . . . 20

33. First-Line Supervision Training Needs 22

34. First-Line Supervision — Major Fields of Study of College Graduates 23

35. First-Line Supervision — Major Areas of Work 23

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 24

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 24

38. First-Line Supervision — Sources of Information Used in Updating. 25

39. First-Line Supervision — Preference for Media of Course Presentation 26

40. Supervisors' Perception of Company Policy Toward Professional Development 26

41. First-Line Supervision — Proportion of Tuition Paid 27

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CHEMICAL, RUBBER, AND PLASTIC PRODUCTS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 216 managers and supervisors from 13 companies in the Chemical, Rubber, and Plastic Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, only one was checked by 50 percent or more of top managers as "Should Have". (Page 3) However, nine other courses were said to be needed by between 40 and 50 percent. (Page 4-6)

For those they supervise, 50 percent or more of top managers said ten courses were needed. (Page 3)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need in areas of general management, behavioral science and management, and communication for six of 54 listed courses. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need five of the listed courses. (Page 8)

The educational level was high, with 66 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for eight of 16 courses. (Page 21)

Eighteen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the industrial category of Chemical, Rubber, and Plastic Products, 30 top managers from 13 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The only course for which top management indicated a "Should Have" need of 50 percent or more was Management of Research and Development, at 54 percent.

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications	73
Communication in the Organization	70
Performance Appraisal and Counseling Techniques	69
Management Development	62
Creativity and Innovation	60
Effective Speaking	59
Improving Decision Making of Managers	58
Working Effectively with Individuals and Groups	58
Listening Skills	52
Human Aspect of Management	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management of Research and Development	54	69	35
Industrial Organization and Administration	48	92	37
Improving Decision Making of Managers	46	85	58
Impact of Computer Technology . .	46	67	29
Overall Strategy and Goals	44	74	15
Long-range Planning and Forecasting for Corporate Growth . .	38	86	10
Policy Formation	38	80	23
Management Reporting Systems . . .	35	77	46
Effective Utilization of Manpower Resources and Allocation	35	66	38
Managing Major Change in Organizations	27	65	19
Impact of Science and Technology on Business Management .	19	73	12
Impact of Government Legislation and Controls on Business . . .	17	59	4
Ethical Considerations in Business	15	42	15
Impact of Multinational Aspects of Planning and Control	15	27	8

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	44	81	70
Managerial Motivation	42	80	27
Creativity and Innovation	32	72	60
Working Effectively with Individuals and Groups	31	69	58
Human Aspect of Management	14	78	50
Political, Social, and Cultural Trends and Their Impact on Business Management	12	28	8

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=27)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	41	78	59
Listening Skills	41	74	52
Effective Reading Skills	38	69	46
Effective Written Communications	35	73	73

TABLE 4

ECONOMICS
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	12	40	8
Comparative Economic Systems	4	21	0

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods	19	57	8
Statistical Decision Theory. .	12	44	20

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=27)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	42	80	62
Incentives	37	81	22
Criteria and Selection of Personnel.	32	60	36
Performance Appraisal and Counseling Techniques. . . .	31	85	69
Personnel Policy Affecting Labor-Management Relations .	22	57	39
Personnel Policy Affecting Wage and Salary Structure. .	21	75	42
Personnel Policy Affecting Employment Practices	17	55	46

TABLE 7

FINANCIAL MANAGEMENT
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Capital Budgeting.	36	60	20
Managerial Accounting and Budgeting.	35	70	31
Fundamentals of Financial Reporting and Statement Analysis	31	73	23
Financial Planning and Forecasting.	27	54	15

TABLE 8

MANUFACTURING AND PRODUCTION
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Operations Research Applied to Production.	22	52	22
Operations Planning and Control.	21	67	33
Planning and Utilization of Physical Facilities.	20	68	32

TABLE 9

MARKETING
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Logistics Planning	30	56	26
Product Planning	28	68	16
Pricing.	27	62	23
Marketing Research	13	42	13

TABLE 10

INTERNATIONAL MANAGEMENT
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. .	12	20	8
International Economic Analysis	8	16	4

MIDDLE MANAGEMENT

In the industrial category of Chemical, Rubber, and Plastic Products, 61 middle managers from 13 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Working Efficiently with Individuals	64
Management Development	63
Effective Communication in the Organization	58
Performance Appraisal and Counseling Techniques	53
Creativity and Innovation	52
Criteria and Selection of Personnel for Promotion	51

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Working Efficiently with Individuals	78
Effective Communication in the Organization	64
Supervisory Training and Employee Development	64
Listening Skills	56
Performance Appraisal and Counseling Techniques	52

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Chemical, Rubber, and Plastic Products category.

TABLE 11

GENERAL MANAGEMENT (N=59)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals.	64	98	78
Management Development	63	98	49
Performance Appraisal and Counseling Techniques. . . .	53	96	52
Criteria and Selection of Personnel for Promotion. . .	51	90	49
Supervisory Training and Employee Development	49	88	64
Analyzing Organizational Behavior	22	76	25
Effective Utilization of Manpower Resources and Allocation	22	64	31
Principles and Analysis of Office Systems	19	59	23
Impact of Science and Technology on Business Management.	16	69	12
Long-range Planning and Forecasting for Corporate Growth	14	40	10
Impact of Government Legislation and Controls on Business	11	41	14
The Application of Information Technology on Decision Making.	9	54	16
Impact of Computer Technology.	3	48	9

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT (N=58)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . .	52	95	43
Understanding Group Interaction and Behavior.	38	86	43
Human Aspect of Management . .	37	81	47
Management Psychology.	23	81	28
Industrial Sociology	11	60	12
Impact of Consumer Behavior on Management	7	32	4
Social and Cultural Trends and Their Impact on Business Management	5	33	12

TABLE 13

COMMUNICATION
(N=59)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	58	92	64
Oral Presentation of Reports .	43	90	48
Effective Report Writing . . .	41	75	41
Listening Skills	40	91	56
Effective Reading Skills . . .	39	83	39
Conference Leadership.	37	77	35
Business Letter Writing. . . .	33	69	28

TABLE 14

ECONOMICS
(N=56)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	22	67	20
The Price Mechanism.	9	49	5
Fundamentals of Economics. . .	7	48	21
Economics of Technology and Innovation	4	39	11
Economic Trends.	4	37	7
The Economic Systems of the United States.	4	26	4
Comparative Economic Systems .	2	18	5
International Economics. . . .	0	13	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=56)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Replacement Management	18	62	7
Improving Decision Making of Managers	16	71	13
Review of Basic Mathematics. .	16	39	34
Statistical Procedures and Methods.	15	46	9
Inventory Management	14	55	13
Statistical Decision Theory. .	7	51	4
Applying Program Evaluation and Review Techniques (PERT)	7	38	7
Analytic Geometry.	5	14	5
Calculus of Infinite Series. .	5	9	2
Linear Programming	4	28	5
Probability Theory	2	27	7
Waiting Lines.	2	20	4
Dynamic Programming.	2	17	5
Calculus of Finite Differences	2	9	2
Matrix Algebra	2	6	2

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=54)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. .	11	44	11
Applying the Computer to Problems of Business and Management	9	42	11
Fundamentals of Programming for Computer Operations. . .	6	36	7
Mathematics for Digital Computers.	6	23	6

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management and Labor Relations.	41	68	18
In-plant Training.	37	69	37
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	35	70	19
Job Analysis and Job Evaluation Methods	33	71	29
Salary and Wage Administration	29	58	10
Industrial Safety and Medical Services	27	68	14
Maintaining Efficient and Up-To-Date Personnel Records. .	27	50	23
Employee Benefit Plans	17	50	17

TABLE 18

FINANCIAL MANAGEMENT
(N=16)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Financial Planning and Forecasting.	19	50	6
Budgets.	14	50	21
Taxes.	13	40	0
Managerial Accounting.	13	33	7
New Developments in Equipment Replacement Policy	7	43	7
Fundamentals of Financial Reporting and Statement Analysis	7	20	0

TABLE 19

MANUFACTURING AND PRODUCTION
(N=43)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Maintenance Planning and Control.	37	72	47
Automation	36	76	26
Value Analysis	33	82	26
Methods Analysis and Work Simplification	29	90	49
Materials Handling	26	77	40
Production Planning and Control Management	23	78	23
Quality Control.	22	68	32
Engineering Economy.	17	66	12
Organization and Management of Purchasing Operations. . . .	13	46	10
Inventory Management	10	63	20

TABLE 20

MARKETING
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Packaging Design and Development.	20	40	20
Fundamentals of Pricing. . . .	11	44	11
Product Planning	10	40	0
Physical Distribution Methods.	10	30	10
Marketing Management	0	44	0
Fundamentals of Marketing. . .	0	33	0
Marketing Research	0	33	0
Application of Management Science and Computers to Marketing Problems	0	25	0
Brand Marketing.	0	11	0

TABLE 21

SALES MANAGEMENT
(N=9)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Training of Field Salesmen . .	0	25	0
Motivating Salesmen.	0	22	0
Compensation of Field Salesmen	0	22	0
Selection and Evaluation of Field Salesmen	0	22	0
Supervision of Field Salesmen.	0	13	0

TABLE 22

INTERNATIONAL MANAGEMENT
(N=9)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Commercial Policy and Trade Control.	22	33	11
Sources of Funds: Financing of Day-To-Day Transactions. . .	22	33	11
International Understanding. .	11	33	0
Monetary Exchange Problems . .	11	22	0
United States Foreign Economic Policy.	11	22	0
International Economic Analysis	11	22	0
International Law.	0	25	0
International Economic Organizations.	0	25	0
Appraising and Developing Foreign Markets.	0	25	0
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	0	13	0

TABLE 23

RESEARCH AND DEVELOPMENT
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Evaluation of the Research and Development Programs . .	43	72	21
Supervision and Management of Research Services	38	61	8
Guidelines for Selecting and Appraising New Projects. . .	29	72	21
Building Research and Development Teams.	27	67	0
Planning Budgeting and Control of Projects.	21	64	7

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=25) of the 61 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-three percent (N-56) had completed high school, 66 percent (N=40) had the bachelor's degree, and 13 percent (N=8) had the master's degree. One person had the doctorate. Eleven percent (N=7) went to business school and seven percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's	Number Doctor's
Agriculture	1	0	0
Business Administration	5	2	0
Education	1	1	0
Engineering	24	1	0
Liberal Arts.	1	0	0
Mineral Industries.	1	1	0
Psychology.	7	3	1
Total.	40	8	1

The major areas of work for the middle managers in the Chemical, Rubber, and Plastic Products industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	9	15
Engineering	6	10
Finance	2	3
Industrial Relations	3	5
Maintenance	3	5
Manufacturing	25	40
Production Control — Records	2	3
Purchasing and Procurement	1	2
Research and Development	6	10
Service (yard and labor personnel,etc.)	1	2
Traffic and Transportation	1	2
Other (not specified)	2	3
Total	61	100

Methods of Updating

Sixty-six percent (N=40) of the middle managers would take a credit course and 82 percent (N=50) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the associate degree, and one for the master's. One was studying business administration. No one was planning to enroll.

Eighty-nine percent had no plans for further degree work and their reasons follow:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	18	33
Live too far from educational center	10	19
Job demands no more education	7	13
Not interested	5	9
Cannot afford it	4	7
Can do better on my own	3	6
Not a high school graduate	2	4
Other (not specified)	5	9
Total	54	100

The variety of educational methods used by middle managers for updating within the past four years is shown below:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=61)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics	30	49
Attendance at regional or national meetings of professional societies	28	46
Company in-service training courses	13	21
Managerial development within company	10	16
Short refresher courses at colleges or universities	9	15
Correspondence courses	7	11
Television courses	2	3
Workshops or seminars in liberal arts or humanities	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=60)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	70	27	3	0	0
In-plant reports and bulletins . . .	64	29	3	2	2
Subordinate-superior discussions or meetings.	54	36	10	0	0
Manufacturer's literature.	28	35	30	5	2
Scientific and technical journals. .	21	32	28	16	3
Management journals.	19	51	20	5	5
Business reports	17	34	33	13	3
Technical books, reports, abstracts, and indexes.	17	34	34	12	3
Lectures, conferences, workshops, and seminars	17	30	29	14	10
Professional society meetings. . . .	10	24	28	35	3
Company in-service courses	4	25	25	23	23
College and university evening courses.	3	14	17	56	10
Use of consultants	2	14	25	57	2
College and university day courses.	0	5	3	90	2

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=61)

	Number Managers	Percent Managers
Programmed instruction.	30	49
Educational television.	24	39
Correspondence courses.	23	38
Courses recorded on tapes	7	11
Two-way telephone courses	7	11
Courses recorded on records	6	10
Two-way radio courses	5	8
Other (not specified)	3	5

Company Attitudes Toward Education

Of the 59 managers responding to a question on the attitude of their immediate superior toward continuing their education, 39 percent (N=23) said the superior encouraged them and 61 percent (N=36) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities. (Table 30)

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=60)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	77	4	2	17
Attend professional meetings	65	28	2	5
Enroll for advanced work	61	28	0	11
Hold office in professional societies. .	57	29	0	14
Attend seminars or workshops away from the company.	55	23	4	18
Write technical and professional papers. .	54	16	2	28
Educational leave of absence.	7	18	17	58

Forty-three percent of the middle managers indicated that they were employed by companies which provided in-service training; 52 percent were not, and five percent did not know. Twenty-nine percent said the training was entirely on company time, 42 percent said it was partly on company time, nine percent said it was not on company time, and 20 percent did not know.

Seventy-four percent reported that their company had an educational assistance plan. Twenty-three percent said it did not and three percent did not know. Fifty-eight percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 45 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	13
About 3/4	5
About 2/3	10
About 1/2	13
About 1/3	0
Less than 1/3	0
Don't know	4
Total	45

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	13
251 - 300	0
201 - 250	0
151 - 200	7
101 - 150	0
51 - 100	0
50 or less	0
Don't know	25
Total	45

When asked about the effect of available company educational assistance in motivating them to undertake further education, 11 percent of the middle managers said it had strongly encouraged them, 41 percent said it had partially influenced them, and 48 percent said it had no effect. There is an inconsistency here: while 52 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and no one was planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Chemical, Rubber, and Plastic Products, 125 first-line supervisors from 13 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

Educational Needs

The 125 first-line supervisors in the category of Chemical, Rubber, and Plastic Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Leadership	66
Fundamentals of the Supervisor's Job	64
Safety	61
Decision Making	56
The Tools and Techniques of Effective Supervision	56
Human Aspect of Management	55
Communications	50
Supervisor's Role in Employee Discipline	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=125)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisors Job . . .	80	64	116	93
The Tools and Techniques of Effective Supervision	68	56	108	89
Decision Making	67	56	102	85
Supervisor's Role in Employee Discipline.	60	50	103	86
Supervisor's Role in Company Economics. .	55	46	101	84
Inter-Departmental Cooperation.	52	44	101	86
Employee Training and Evaluation				
Safety.	70	61	102	89
Evaluation of Employee Performance. . . .	50	42	98	82
Employee Training	48	40	94	78
The Supervisor and the Union				
Grievance Procedure and Arbitration . . .	53	44	94	78
Labor Relations	48	41	79	67
Labor Relations Legislation	26	22	58	50
Developing Those We Supervise				
Leadership.	80	66	108	89
Human Aspect of Management.	67	55	108	89
Communications.	59	50	104	88
Developing the Work Team.	45	39	89	77

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Thirty-seven percent (N=46) of the first-line supervisors were 40 years of age or younger. Seventy-five percent (N=92) were high school graduates, 18 percent (N=22) had the bachelor's degree, and three percent (N=4) had the master's degree; no one had the doctorate. Two percent (N=2) had gone to business school and 14 percent (N=18) to trade school. The major fields of study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture	1	0
Architecture	1	0
Business Administration	3	0
Education	2	1
Engineering	11	0
Law	0	1
Liberal Arts	1	0
Psychology	3	1
Other (not specified)	0	1
Total	22	4

Below is a listing of the major areas of work for the first-line supervisors in the Chemical, Rubber, and Plastic Products industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	3	2
Engineering	5	4
Industrial Relations	1	1
Maintenance	17	14
Manufacturing	69	57
Production Control — Records	10	8
Purchasing and Procurement	1	1
Research and Development	4	3
Service (yard and labor personnel,etc.)	3	2
Traffic and Transportation	5	4
Other (not specified)	5	4
Total	123	100

Methods of Updating

Forty-four percent (N=53) of the first-line supervisors would take a credit course and 68 percent (N=83) would take a non-credit course if they were offered locally.

Two of the supervisors were enrolled for a degree: one for the associate degree and one for the master's. One was planning to enroll for the bachelor's degree and four for the master's. Of those enrolled or planning to enroll, the major field of study was business administration for five, engineering for one, and psychology for one.

For the 82 percent (N=103) of the supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Cannot afford it	23	22
Not a high school graduate	21	20
Don't have the time.	18	17
Not interested	12	12
Live too far from educational center .	8	8
Job demands no more education.	8	8
Can do better on my own.	2	2
Other (not specified).	11	11
Total	103	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=125)

	Number Supervisors	Percent Supervisors
Company in-service training courses. .	39	31
Managerial development within company.	36	29
Workshops or seminars on managerial topics	29	23
Correspondence courses	13	10
Attendance at regional or national meetings of professional societies .	12	10
Short refresher courses at colleges or universities.	6	5
High school courses to improve job performance.	3	2
Television courses	2	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=107)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins. .	57	33	3	2	5
Discussion with company personnel (informal or formal).	50	36	8	0	6
Subordinate-superior discussions or meetings	34	51	6	2	7
Manufacturer's literature	23	36	16	14	11
Management journals	21	39	12	17	11
Company in-service courses. . . .	13	25	13	18	31
Technical books, reports, abstracts and indexes	12	30	20	24	14
Scientific and technical journals	11	30	20	28	11
Lectures, conferences, workshops, and seminars.	9	35	17	20	19
Business reports.	6	28	24	37	5
Use of consultants.	5	19	20	44	12
College and university evening courses	3	8	7	73	9
Professional society meetings . .	1	15	13	67	4
College and university day courses	0	0	2	96	2

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=125)

	Number Supervisors	Percent Supervisors
Correspondence courses	66	53
Programmed instruction	49	39
Educational television	30	24
Courses recorded on records.	22	18
Courses recorded on tapes.	22	18
Two-way telephone courses.	12	10
Two-way radio courses.	11	9
Other (not specified).	4	3

Company Attitudes Toward Education

A total of 122 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Thirty-nine percent (N=47) said the superior encouraged them; 59 percent (N=72) said he was noncommittal; and two percent (N=3) said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in Table 40. The high percent who did not know company policy indicates either a lack of policy of a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=111)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	69	10	1	20
Attend professional meetings.	63	13	3	21
Enroll for advanced work.	62	13	4	21
Attend seminars or workshops away from the company	46	14	2	38
Hold office in professional societies . .	45	15	2	38
Write technical and professional papers . .	39	9	1	51
Educational leave of absence	11	11	11	67

Fifty-one percent of the supervisors indicated that they were employed by companies which provided in-service training; 41 percent said their company did not provide it and eight percent did not know. Thirty-three percent said the training was completely on company time, 26 percent said it was partly on company time, 11 percent said it was entirely on the men's own time, and 30 percent did not know.

Seventy percent reported that their company had an educational assistance plan; 18 percent said it did not, and 12 percent did not know. Fifty-five percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 77 supervisors who answered this question, is shown below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	19
About 3/4	8
About 2/3	9
About 1/2	19
About 1/3	1
Less than 1/3	0
Don't know	21
Total	77

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	12
251 - 300	1
201 - 250	0
151 - 200	5
101 - 150	0
51 - 100	0
50 or less	1
Don't know	56
Total	75

When asked what the effect of available financial assistance was on their motivation to undertake further education, 27 percent of the supervisors said it strongly encouraged them, 28 percent said it partially influenced them, and 45 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 55 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 125 respondents were actually enrolled and five were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE CHEMICAL, RUBBER, AND PLASTIC PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Chemical, Rubber and Plastic Products were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." The results were quite similar, except for the needs of top management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Chemical, Rubber and Plastic Products N=30	Total Report N=705
Management of Research and Development	54	*
Communication in the Organization	*	59
Management Development	*	53
Effective Speaking	*	50
Effective Written Communications	*	50
Long-range Planning and Forecasting for Corporate Growth	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Chemical, Rubber, and Plastic Products N=30	Total Report N=705
Effective Written Communications	73	74
Communication in the Organization	70	65
Performance Appraisal and Counseling Techniques	69	57
Management Development	62	56
Creativity and Innovation	60	*
Effective Speaking	59	67
Improving Decision Making of Managers	58	54
Working Effectively with Individuals and Groups	58	66
Listening Skills	52	62
Human Aspect of Management	50	54
Effective Reading Skills	*	62

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Chemical, Rubber, and Plastic Products and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Chemical, Rubber, and Plastic Products N=61	Total Report N=1,202
Working Efficiently with Individuals	64	65
Management Development	63	66
Effective Communication in the Organization	58	64
Performance Appraisal and Counseling Techniques	53	*
Creativity and Innovation	52	*
Criteria and Selection of Personnel for Promotion	51	*
Supervisory Training and Employee Development	*	53

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Chemical, Rubber, and Plastic Products N=61	Total Report N=1,202
Working Efficiently with Individuals	78	62
Supervisory Training and Employee Development	64	61
Effective Communication in the Organization	64	56
Listening Skills	56	50
Performance Appraisal and Counseling Techniques	52	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" fhe following of a listing of 16 subjects:

	"Should Have" Percent	
	Chemical, Rubber, and Plastic Products N=125	Total Report N=1,713
Leadership	66	57
Fundamentals of the Supervisor's Job	64	64
Safety	61	*
Decision Making	56	54
The Tools and Techniques of Effective Supervision	56	55
Human Aspect of Management	55	53
Communications	50	51
Supervisor's Role in Employee Discipline	50	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63 Banks
M-64 Chemical, Rubber, and Plastic Products
M-65 Construction
M-66 Department Stores
M-67 Electrical Machinery
M-68 Fabricated Metal Products
M-69 Food and Kindred Products
M-70 Insurance
M-71 Machinery (Except Electrical)
M-72 Petroleum Refining
M-73 Primary Metals
M-74 Professional, Scientific, and Controlling Instruments
M-75 Railroads
M-76 Stone, Clay, and Glass Products
M-77 Telephone and Telegraph
M-78 Transportation
M-79 Transportation Equipment
M-80 Gas and Electric Utilities
M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1 Chemical
E-2 Civil
E-3 Electrical-Electronics
E-4 Electrical-Power
E-5 Engineering-General
E-6 Industrial
E-7 Mechanical
E-8 Metallurgical
E-9 Mining

Industrial Groups:

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:	Information about the above publications may be secured from:
Continuing Education Business Office J. Orvis Keller Building The Pennsylvania State University University Park, Pennsylvania 16802	Department of Planning Studies One Shields Building The Pennsylvania State University University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CONSTRUCTION INDUSTRY IN PENNSYLVANIA

M-65

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CONSTRUCTION INDUSTRY IN PENNSYLVANIA

M-65

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

  Top Management 2
  Middle Management. 2
  First-Line Supervision 3

TOP MANAGEMENT 3

  Educational Needs Within Areas of Managerial Responsibility. 3

MIDDLE MANAGEMENT. 8

  Educational Needs Within Areas of Managerial Responsibility. 8
  Background Information of Middle Managers. 15

    Personal, Educational and Professional Background. 15
    Methods of Updating. 16
    Company Attitudes Toward Education 19

FIRST-LINE SUPERVISION 20

  Educational Needs. 20
  Background Information of First-Line Supervisors 21

    Personal, Educational, and Professional Background 21
    Methods of Updating. 22
    Company Attitudes Toward Education 25

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE CONSTRUCTION INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT. . . . 27

  Top Management 27
  Middle Management. 28
  First-Line Supervision 29

RECOMMENDATIONS. 30

  For the University 30
  For Business and Industry. 30
  For the Individual Manager and Supervisor. 31
  For Professional Associations. 31

LIST OF TABLES

PAGE

1. Top Management — General Management. 4

2. Top Management — Behavioral Science and Management 5

3. Top Management — Communications Techniques 5

4. Top Management — Economics 5

5. Top Management — Quantitative Methods Applied to Business and Industry. 6

6. Top Management — Industrial Relations and Personnel Management. 6

7. Top Management — Financial Management. 6

8. Top Management — Manufacturing and Production. 7

9. Top Management — Marketing 7

10. Top Management — International Management. 7

11. Middle Management — General Management 9

12. Middle Management — Behavioral Science and Management. 9

13. Middle Management — Communication. 10

14. Middle Management — Economics. 10

15. Middle Management — Quantitative Methods Applied to Business and Industry. 11

16. Middle Management — Computer Operations and Data Processing. 11

17. Middle Management — Industrial Relations and Personnel Management. 12

18. Middle Management — Financial Management 12

19. Middle Management — Manufacturing and Production 13

20. Middle Management — Marketing. 13

21. Middle Management — Sales Management 14

22. Middle Management — International Management 14

23. Middle Management — Research and Development 15

24. Middle Management — Major Fields of Study of College Graduates . 15

PAGE

25. Middle Management — Major Areas of Work. 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 17

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 17

28. Middle Management — Sources of Information Used in Updating. . . 18

29. Middle Management — Preference for Media of Course Presentation. 18

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management —Proportion of Tuition Paid. 20

32. First-Line Supervision Training Needs 21

33. First-Line Supervision — Major Fields of Study of College Graduates 22

34. First-Line Supervision — Major Areas of Work 22

35. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 23

36. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 23

37. First-Line Supervision — Sources of Information Used in Updating. 24

38. First-Line Supervision — Preference for Media of Course Presentation. 25

39. Supervisors' Perception of Company Policy Toward Professional Development 25

40. First-Line Supervision — Proportion of Tuition Paid. 26

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CONSTRUCTION INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 132 managers and supervisors from 13 companies in the Construction industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, six were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said four courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for two of 54 listed courses in the area of general management. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need only one of the listed courses. (Page 8)

Twenty-five percent had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for only one of 16 courses. (Page 20)

Nineteen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitide toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Construction, 36 top managers from 13 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Effective Speaking.	66
Financial Planning and Forecasting.	64
Effective Written Communications.	62
Fundamentals of Financial Reporting and Statement Analysis. .	61
Management Development.	59
Effective Reading Skills.	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications.	59
Working Effectively with Individuals and Groups	54
Effective Speaking.	54
Effective Reading Skills.	51

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Overall Strategy and Goals . . .	49	72	26
Long-range Planning and Forecasting for Corporate Growth .	37	77	17
Improving Decision Making of Managers	37	71	40
Industrial Organization and Administration	37	71	34
Management Reporting Systems . .	31	57	29
Managing Major Change in Organizations.	29	72	14
Policy Formation	29	63	23
Ethical Considerations in Business	26	55	29
Impact of Computer Technology. .	24	56	29
Impact of Government Legislation and Controls on Business . . .	18	56	21
Impact of Science and Technology on Business Management	18	47	24
Management of Research and Development.	16	38	22
Effective Utilization of Manpower Resources and Allocation	12	56	21
Impact of Multinational Aspects of Planning and Control. . . .	6	19	10

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Effectively with Individuals and Groups	49	80	54
Communication in the Organization	46	72	37
Managerial Motivation.	35	70	44
Human Aspect of Management . . .	22	81	44
Creativity and Innovation. . . .	21	39	21
Political, Social, and Cultural Trends and Their Impact on Business Management.	7	24	14

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=36)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	66	75	54
Effective Written Communications	62	80	59
Effective Reading Skills	51	82	51
Listening Skills	47	75	39

TABLE 4

ECONOMICS
(N=33)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	18	45	24
Comparative Economic Systems . .	10	20	13

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=31)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods.	10	39	16
Statistical Decision Theory. . .	3	42	23

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=34)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	59	85	41
Criteria and Selection of Personnel.	45	69	36
Incentives	39	71	35
Personnel Policy Affecting Labor-Management Relations . .	39	71	26
Personnel Policy Affecting Wage and Salary Structure	33	56	23
Personnel Policy Affecting Employment Practices	21	49	17
Performance Appraisal and Counseling Techniques.	14	80	38

TABLE 7

FINANCIAL MANAGEMENT
(N=34)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Financial Planning and Forecasting.	64	76	24
Fundamentals of Financial Reporting and Statement Analysis	61	76	21
Capital Budgeting.	47	68	24
Managerial Accounting and Budgeting.	30	54	21

TABLE 8

MANUFACTURING AND PRODUCTION
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	20	43	20
Operations Planning and Control.	17	38	34
Operations Research Applied to Production	3	33	20

TABLE 9

MARKETING
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Pricing.	31	41	28
Marketing Research	28	38	21
Product Planning	15	26	11
Logistics Planning	8	27	19

TABLE 10

INTERNATIONAL MANAGEMENT
(N=27)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	4	19	4
International Economic Analysis.	0	12	8

MIDDLE MANAGEMENT

In the industrial category of Construction, 44 middle managers from 13 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development.	51
Working Efficiently with Individuals.	50

Only one course was above the 50 percent mark for those supervised by middle managers: Working Efficiently with Individuals. (55 percent)

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Construction industry.

TABLE 11

GENERAL MANAGEMENT
(N=42)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	51	89	36
Working Efficiently with Individuals.	50	93	55
Supervisory Training and Employee Development	43	88	48
Performance Appraisal and Counseling Techniques.	36	88	26
Criteria and Selection of Personnel for Promotion. . . .	34	73	22
Analyzing Organizational Behavior	30	73	28
Principles and Analysis of Office Systems	28	66	18
Effective Utilization of Manpower Resources and Allocation	27	68	29
The Application of Information Technology on Decision Making.	21	50	16
Long-range Planning and Forecasting for Corporate Growth .	20	68	18
Impact of Computer Technology. .	18	46	15
Impact of Science and Technology on Business Management.	15	65	18
Impact of Government Legislation and Controls on Business . . .	10	55	13

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=42)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Psychology.	29	72	10
Human Aspect of Management . . .	25	75	20
Understanding Group Interaction and Behavior	23	61	15
Creativity and Innovation. . . .	22	61	20
Social and Cultural Trends and Their Impact on Business Management	18	41	13
Industrial Sociology	15	38	13
Impact of Consumer Behavior on Management	13	34	10

TABLE 13

COMMUNICATION
(N=42)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Business Letter Writing.	49	90	44
Effective Communication in the Organization	48	83	43
Effective Report Writing	43	79	38
Oral Presentation of Reports . .	37	78	39
Listening Skills	37	78	32
Effective Reading Skills	33	79	38
Conference Leadership.	29	58	17

TABLE 14

ECONOMICS
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	26	52	18
The Price Mechanism.	20	58	15
Economic Trends.	11	64	13
Fundamentals of Economics. . . .	10	48	18
The Economic Systems of the United States.	8	44	10
Economics of Technology and Innovation	3	34	5
Comparative Economic Systems . .	0	23	5
International Economics.	0	10	3

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=41)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	39	61	5
Replacement Management	35	63	15
Review of Basic Mathematics	30	58	40
Inventory Management	28	58	15
Applying Program Evaluation and Review Techniques (PERT)	23	61	18
Statistical Decision Theory	13	59	8
Linear Programming	13	37	8
Dynamic Programming	13	29	3
Statistical Procedures and Methods	10	38	5
Probability Theory	8	31	8
Analytic Geometry	5	28	13
Matrix Algebra	5	20	8
Calculus of Infinite Series	5	18	8
Calculus of Finite Differences	5	15	5
Waiting Lines	0	18	3

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing	28	61	25
Applying the Computer to Problems of Business and Management	23	66	18
Fundamentals of Programming for Computer Operations	20	35	13
Mathematics for Digital Computers	11	27	13

If the managers' area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	44	94	28
Management and Labor Relations .	44	77	28
In-plant Training.	35	76	35
Job Analysis and Job Evaluation Methods.	32	79	11
Maintaining Efficient and Up-To-Date Personnel Records	31	75	31
Employee Benefit Plans	29	76	12
Salary and Wage Administration .	24	53	18
Industrial Safety and Medical Services	18	53	29

TABLE 18

FINANCIAL MANAGEMENT
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
New Developments in Equipment Replacement Policy	35	82	18
Budgets.	31	81	25
Fundamentals of Financial Reporting and Statement Analysis	25	75	25
Taxes.	24	77	18
Managerial Accounting.	20	73	27
Financial Planning and Forecasting.	18	71	18

TABLE 19

MANUFACTURING AND PRODUCTION
(N=21)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Methods Analysis and Work Simplification	55	85	35
Organization and Management of Purchasing Operations.	50	89	39
Value Analysis	47	84	37
Automation	45	80	35
Engineering Economy.	45	80	30
Inventory Management	44	66	33
Production Planning and Control Management	43	81	24
Maintenance Planning and Control.	37	53	42
Materials Handling	32	58	26
Quality Control.	26	42	21

TABLE 20

MARKETING
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Management	42	75	33
Physical Distribution Methods. .	33	75	17
Fundamentals of Marketing. . . .	33	66	8
Fundamentals of Pricing.	31	93	15
Product Planning	25	75	25
Marketing Research	25	50	17
Brand Marketing.	18	45	9
Application of Management Science and Computers to Marketing Problems	8	39	8
Packaging Design and Development	0	0	10

TABLE 21

SALES MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Selection and Evaluation of Field Salesmen	46	69	15
Motivating Salesmen.	36	86	21
Supervision of Field Salesmen. .	36	79	29
Compensation of Field Salesmen .	36	57	21
Training of Field Salesmen . . .	31	69	23

TABLE 22

INTERNATIONAL MANAGEMENT
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	0	43	14
United States Foreign Economic Policy	0	33	17
Monetary Exchange Problems . . .	0	17	17
Commercial Policy and Trade Control.	0	17	17
International Law.	0	17	17
International Economic Organizations.	0	17	17
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	0	17	17
Sources of Funds: Financing of Day-to-Day Transactions. . . .	0	17	17
Appraising and Developing Foreign Markets.	0	17	17
International Economic Analysis.	0	17	0

TABLE 23

RESEARCH AND DEVELOPMENT
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning Budgeting and Control of Projects.	60	90	30
Guidelines for Selecting and Appraising New Projects. . . .	13	38	13
Evaluation of the Research and Development Program.	0	44	22
Building Research and Development Teams	0	33	33
Supervision and Management of Research Services.	0	33	11

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-nine percent (N=13) of the 44 middle managers were 40 years of age or younger. This means that they have a least 25 more years of productive employment. Eighty-nine percent (N=39) had completed high school, 25 percent (N=11) had the bachelor's degree, and five percent (N=2) had the master's degree. No one had the doctorate. Twenty-five percent (N=11) went to business school and five percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration.	4	1
Engineering.	5	1
Psychology	1	0
Other (not specified).	1	0
Total	11	2

The major areas of work for the middle managers in Construction are shown in Table 25.

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	16	40
Engineering	6	15
Finance	4	10
Maintenance	1	2
Manufacturing	2	5
Marketing and Sales	2	5
Production Control — Records	2	5
Purchasing and Procurement	3	7
Service (yard and labor personnel, etc.)	1	2
Traffic and Transportation	1	2
Other (not specified)	3	7
Total	41	100

Methods of Updating

Fifty-eight percent (N=23) of the middle managers would take a credit course and 65 percent (N=28) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the bachelor's degree and one for the master's. Two planned to enroll for the bachelor's degree. Major fields of study for those enrolled or planning to enroll were: two in business administration, one in education, and one in another field which was not speicfied.

Eighty-four percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	20	54
Job demands no more education	6	16
Cannot afford it	2	5
Live too far from educational center	1	3
Can do better on my own	1	3
Not interested	1	3
Not a high school graduate	1	3
Other (not specified)	5	13
Total	37	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS

(N=44)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics	18	41
Attendance at regional or national meetings of professional societies	11	25
Correspondence courses	7	16
Company in-service training courses	6	14
Managerial development within company	6	14
Short refresher courses at colleges or universities	2	5

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=41)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	60	34	3	0	3
In-plant reports and bulletins	44	37	3	8	8
Subordinate-superior discussions or meetings	43	49	5	3	0
Manufacturer's literature	41	35	5	16	3
Business reports	32	29	29	5	5
Management journals	24	33	32	8	3
Lectures, conferences, workshops, and seminars	23	31	23	13	10
Technical books, reports, abstracts and indexes	19	49	24	8	0
Scientific and technical journals	14	39	25	19	3
Professional society meetings	8	17	36	36	3
College and university evening courses	6	3	14	71	6
Use of consultants	5	22	41	27	5
Company in-service courses	3	20	6	34	37
College and university day courses	0	3	6	91	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=44)

	Number Managers	Percent Managers
Correspondence courses	21	48
Programmed instruction	17	39
Educational television	11	25
Courses recorded on tapes	9	20
Courses recorded on records	9	20
Two-way telephone courses	5	11
Other (not specified)	2	5

Company Attitudes Toward Education

Of the 41 managers responding to a question on the attitude of their immediate superior toward continuing their education, 44 percent (N=18) said the superior encouraged them and 56 percent (N=23) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities as listed below:

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=38)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	83	14	0	3
Attend company training courses.	82	12	0	6
Hold office in professional socieites . .	65	26	0	9
Attend seminars or workshops away from the company.	64	13	5	18
Enroll for advanced work .	61	22	3	14
Write technical and professional papers	28	34	0	38
Educational leave of absence.	3	11	8	78

Twenty-six percent of the middle managers indicated that they were employed by companies which provided in-service training; 69 percent were not, and five percent did not know. Thirty-three percent said the training was entirely on company time, 22 percent said it was partly on company time, 19 percent said it was not on company time, and 26 percent did not know.

Twenty-seven percent reported that their company had an educational assistance plan. Sixty-three percent said it did not and ten percent did not know. Forty percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the ten managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	1
About 3/4	0
About 2/3	0
About 1/2	7
About 1/3	0
Less than 1/3	0
Don't know	2
Total	10

None of the managers knew the maximum amount of tuition paid per year by the companies for which they work.

When asked about the effect of available company educational assistance in motivating them to undertake further education, 17 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 58 percent said it had no effect. There is an inconsistency here: while 42 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and two were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Construction, 52 first-line supervisors from 13 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

Educational Needs

The 52 first-line supervisors in the industrial category of Construction were asked to indicate which of the 16 course listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need."

The one course which was rated "Should Have" by 50 percent or more of the supervisors was Fundamentals of the Supervisor's Job, (52 percent).

Table 32 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 32

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=50)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	26	52	39	78
The Tools and Techniques of Effective Supervision	18	37	40	82
Decision Making	16	34	39	83
Supervisor's Role in Company Economics	15	33	36	79
Supervisor's Role in Employee Discipline	11	23	31	66
Inter-Departmental Cooperation	10	21	28	59
Employee Training and Evaluation				
Safety	18	39	32	69
Evaluation of Employee Performance	14	30	30	65
Employee Training	4	9	26	56
The Supervisor and the Union				
Labor Relations	16	33	32	66
Grievance Procedure and Arbitration	8	17	28	59
Labor Relations Legislation	7	15	24	51
Developing Those We Supervise				
Human Aspect of Management	17	36	37	79
Communications	15	33	29	63
Leadership	13	28	41	88
Developing the Work Team	13	28	31	67

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Thirty-two percent (N=16) of the first-line supervisors were 40 years of age or younger. Eighty-four percent (N=43) were high school graduates, 19 percent (N=10) had the bachelor's degree, and no one had the master's degree or the doctorate. Twelve percent (N=6) had gone to business school and 15 percent (N=8) to trade school. The major fields of study are indicated in the following table:

TABLE 33

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's
Architecture	1
Engineering	4
Law	1
Liberal Arts	1
Mineral Industries	1
Other (not specified)	2
Total	10

The major areas of work for the first-line supervisors in Construction are shown in the following table:

TABLE 34

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	7	15
Engineering	10	23
Finance	2	4
Industrial Relations	1	2
Maintenance	3	7
Manufacturing	3	7
Marketing and Sales	1	2
Production Control — Records	1	2
Purchasing and Procurement	2	4
Research and Development	1	2
Service (yard and labor personnel, etc.)	7	15
Traffic and Transportation	1	2
Other (not specified)	7	15
Total	46	100

Methods of Updating

Forty-seven percent (N=24) of the first-line supervisors would take a credit course and 72 percent (N=36) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for the bachelor's degree. Two planned to enroll for the bachelor's degree and one for the master's. Of those enrolled or planning to enroll, two wanted to study engineering and one psychology.

For the 45 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time.	20	45
Cannot afford it	10	22
Job demands no more education.	5	11
Not a high school graduate	4	9
Not interested	4	9
Can do better on my own.	1	2
Other (not specified).	1	2
Total	45	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS
(N=52)

	Number Supervisors	Percent Supervisors
Company in-service training courses. . .	12	23
Workshops or seminars on managerial topics	11	21
Managerial development within company. .	7	13
Correspondence courses	6	12
Attendance at regional or national meetings of professional societies . .	5	10
Short refresher courses at colleges or universities.	5	10
Workshops or seminars in liberal arts or humanities.	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING
(N=43)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	58	28	0	5	9
Subordinate-superior discussions or meetings.	34	34	13	16	3
Manufacturer's literature.	32	34	13	13	8
In-plant reports and bulletins . .	28	36	10	18	8
Scientific and technical journals.	18	43	13	21	5
Technical books, reports, abstracts, and indexes	18	34	16	24	8
Professional society meetings. . .	14	8	11	56	11
Management journals.	13	44	10	15	18
Business reports	7	37	21	33	2
Use of consultants	6	20	26	45	3
Lectures, conferences, workshops, and seminars.	5	29	15	23	28
College and university day courses.	3	0	0	80	17
Company in-service courses	0	22	3	30	45
College and university evening courses.	0	6	6	64	24

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=52)

	Number Supervisors	Percent Supervisors
Correspondence courses	28	54
Programmed instruction	20	38
Educational television	10	19
Courses recorded on tapes.	10	19
Courses recorded on records.	6	12
Two-way telephone courses.	5	10
Two-way radio courses.	2	4

Company Attitudes Toward Education

A total of 48 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-eight percent (N=23) said the superior encouraged them; 50 percent (N=24) said he was noncommittal, and two percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates eigher a lack of policy or a lack of communication.

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=46)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	73	8	3	16
Attend professional meetings	46	8	5	41
Hold office in professional societies. . .	42	29	3	26
Enroll for advanced work .	32	24	0	44
Attend seminars or workshops away from the company.	32	19	5	44
Write technical and professional papers	24	26	0	50
Educational leave of absence.	2	4	11	83

Twenty-two percent of the supervisors were employed by companies which provided in-service training; 66 percent said their company did not provide it and 12 percent did not know. Forty-one percent said the training was completely on company time, no one said it was partly on company time, 24 percent said it was entirely on the men's own time, and 35 percent did not know.

Twenty-eight percent reported that their company had an educational assistance plan; 48 percent said it did not, and 24 percent did not know. Thirty-six percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 17 supervisors who answered this question, is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	3
About 3/4	0
About 2/3	0
About 1/2	4
About 1/3	0
Less than 1/3	0
Don't know	10
Total	17

None of the supervisors knew the maximum amount of tuition paid per year by the companies for which they work.

When asked what the effect of available financial assistance was on their motivation to undertake further education, 22 percent of the supervisors said it strongly encouraged them, 28 percent said it partially influenced them, and 50 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 50 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 52 respondents were actually enrolled and three were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE CONSTRUCTION INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Construction as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were relatively lower and less numerous, except for top management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Construction N=36	Total Report N=705
Effective Speaking	66	50
Financial Planning and Forecasting	64	*
Effective Written Communications	62	50
Fundamentals of Financial Reporting and Statement Analysis	61	*
Management Development	59	53
Effective Reading Skills	51	*
Communication in the Organization	*	59
Long-range Planning and Forecasting for Corporate Growth	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Construction N=36	Total Report N=705
Effective Written Communications	59	74
Effective Speaking	54	67
Working Effectively with Individuals and Groups	54	66
Effective Reading Skills	51	62
Communication in the Organization	*	65
Listening Skills	*	62
Performance Appraisal and Counseling Techniques	*	57
Management Development	*	56
Human Aspect of Management	*	54
Improving Decision Making of Managers	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Construction and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Construction N=44	Total Report N=1,202
Management Development	51	66
Working Efficiently with Individuals	50	65
Effective Communication in the Organization	*	64
Supervisory Training and Employee Development	*	53

* Less than 50 percent

Subjects with 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent Construction N=44	Total Report N=1,202
Working Efficiently with Individuals	55	62
Supervisory Training and Employee Development	*	61
Effective Communication in the Organization	*	56
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent Construction N=52	Total Report N=1,713
Fundamentals of the Supervisor's Job	52	64
Leadership	*	57
The Tools and Techniques of Effective Supervision	*	55
Decision Making	*	54
Human Aspect of Management	*	53
Communications	*	51

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN DEPARTMENT STORES IN PENNSYLVANIA

M-66

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN
DEPARTMENT STORES
IN PENNSYLVANIA

M-66

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION. 1

SURVEY PROCEDURES 2

SUMMARY 2

- Top Management 2
- Middle Management. 2
- First-Line Supervision 3

TOP MANAGEMENT. 3

- Educational Needs Within Areas of Managerial Responsibility. . . . 3

MIDDLE MANAGEMENT 9

- Educational Needs Within Areas of Managerial Responsibility. . . . 9
- Background Information of Middle Managers. 16
  - Personal, Educational, and Professional Background. 16
  - Methods of Updating 17
  - Company Attitudes Toward Education. 19

FIRST-LINE SUPERVISION. 21

- Educational Needs. 21
- Background Information of First-Line Supervisors 22
  - Personal, Educational, and Professional Background. 22
  - Methods of Updating 23
  - Company Attitudes Toward Education. 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN DEPARTMENT STORES WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 28

- Top Management 28
- Middle Management. 29
- First-Line Supervision 30

RECOMMENDATIONS 31

- For the University 31
- For Business and Industry. 31
- For the Individual Manager and Supervisor. 32
- For Professional Associations. 32

LIST OF TABLES

PAGE

1. Top Management — General Management 5

2. Top Management — Behavioral Science and Management. 5

3. Top Management — Communications Techniques. 6

4. Top Management — Economics. 6

5. Top Management — Quantitative Methods Applied to Business and Industry 6

6. Top Management — Industrial Relations and Personnel Management 7

7. Top Management — Financial Management 7

8. Top Management — Manufacturing and Production 8

9. Top Management — Marketing. 8

10. Top Management — International Management 8

11. Middle Management — General Management. 10

12. Middle Management — Behavioral Science and Management 10

13. Middle Management — Communication 11

14. Middle Management — Economics 11

15. Middle Management — Quantitative Methods Applied to Business and Industry 12

16. Middle Management — Computer Operations and Data Processing . . 12

17. Middle Management — Industrial Relations and Personnel Management 13

18. Middle Management — Financial Management 14

19. Middle Management — Manufacturing and Production. 14

20. Middle Management — Marketing 15

21. Middle Management — Sales Management. 15

PAGE

22. Middle Management — Major Fields of Study of College Graduates. 16

23. Middle Management — Major Areas of Work 16

24. Middle Management — Reasons for Not Undertaking Additional Formal Education 17

25. Middle Management — Educational Methods Used for Updating Within the Past Four Years 17

26. Middle Management — Sources of Information Used in Updating . . 18

27. Middle Management — Preference for Media of Course Presentation 19

28. Managers' Perception of Company Policy Toward Professional Development. 19

29. Middle Management — Proportion of Tuition Paid. 20

30. Middle Management — Maximum Amount of Tuition Paid Per Year . . 20

31. First-Line Supervision Training Needs. 22

32. First-Line Supervision — Major Fields of Study of College Graduates. 23

33. First-Line Supervision — Major Areas of Work. 23

34. First-Line Supervision -- Reasons for Not Undertaking Additional Formal Education. 24

35. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 24

36. First-Line Supervision — Sources of Information Used in Updating 25

37. First-Line Supervision — Preference for Media of Course Presentation 26

38. Supervisors' Perception of Company Policy Toward Professional Development. 26

39. First-Line Supervision — Proportion of Tuition Paid 27

40. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN DEPARTMENT STORES IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 160 managers and supervisors from nine Department Stores in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, eight were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 11 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for four courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need one of the listed courses. (Page 9)

The educational level was high, with 46 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for six out of 16 courses. (Page 21)

Fifty-seven percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the category of Department Stores, 31 top managers from nine stores completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	79
Effective Written Communications	63
Working Effectively with Individuals and Groups	61
Effective Speaking	59
Performance Appraisal and Counseling Techniques	59
Human Aspect of Management	52
Improving Decision Making of Managers	50
Long-range Planning and Forecasting for Corporate Growth	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications	70
Effective Speaking	66
Improving Decision Making of Managers	64
Working Effectively with Individuals and Groups	64
Management Development	61
Human Aspect of Management	59
Communication in the Organization	57
Effective Reading Skills	55
Listening Skills	55
Managerial Motivation	52
Performance Appraisal and Counseling Techniques	52

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers.	50	86	64
Long-range Planning and Forecasting for Corporate Growth	50	70	20
Overall Strategy and Goals . .	43	70	27
Policy Formation	40	83	23
Impact of Government Legislation and Controls on Business	37	74	40
Effective Utilization of Manpower Resources and Allocation	36	90	29
Impact of Computer Technology.	33	63	33
Management Reporting Systems .	32	71	36
Management of Research and Development.	29	61	21
Industrial Organization and Administration	17	62	17
Impact of Science and Technology on Business Management.	17	55	24
Ethical Considerations in Business	14	57	32
Managing Major Change in Organizations.	10	62	17
Impact of Multinational Aspects of Planning and Control.	0	8	4

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	79	93	57
Working Effectively with Individuals and Groups . . .	61	86	64
Human Aspect of Management . .	52	86	59
Managerial Motivation.	45	79	52
Creativity and Innovation. . .	33	66	37
Political, Social, and Cultural Trends and Their Impact on Business Management	21	60	21

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	63	86	70
Effective Speaking	59	90	66
Effective Reading Skills . . .	45	83	55
Listening Skills	41	86	55

TABLE 4

ECONOMICS
(N=31)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	19	58	16
Comparative Economic Systems .	8	28	20

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. .	12	43	15
Survey Course on Quantitative Methods, ...	4	39	12

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=31)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Performance Appraisal and Counseling Techniques. . . .	59	87	52
Management Development	48	90	61
Incentives	38	86	28
Criteria and Selection of Personnel.	33	80	43
Personnel Policy Affecting Employment Practices	32	71	39
Personnel Policy Affecting Wage and Salary Structure. .	29	72	36
Personnel Policy Affecting Labor-Management Relations .	25	86	32

TABLE 7

FINANCIAL MANAGEMENT
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting and Budgeting.	37	63	22
Fundamentals of Financial Reporting and Statement Analysis	33	60	17
Financial Planning and Forecasting.	21	50	18
Capital Budgeting.	18	50	11

TABLE 8

MANUFACTURING AND PRODUCTION
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	15	30	8
Operations Planning and Control.	13	22	9
Operations Research Applied to Production.	0	9	0

TABLE 9

MARKETING
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	38	76	31
Pricing.	22	35	26
Logistics Planning	13	55	0
Product Planning	9	18	4

TABLE 10

INTERNATIONAL MANAGEMENT
(N=24)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. .	13	21	4
International Economic Analysis	9	13	4

MIDDLE MANAGEMENT

In the category of Department Stores, 54 middle managers from nine stores completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Working Efficiently with Individuals.	71
Management Development.	54
Effective Communication in the Organization	53
Supervisory Training and Employee Development	52

The only course that 50 percent or more of the middle managers thought those they supervise needed was Working Efficiently with Individuals, 57 percent.

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Department Stores category.

TABLE 11

GENERAL MANAGEMENT
(N=50)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals.	71	91	57
Management Development	54	92	40
Supervisory Training and Employee Development	52	84	42
Performance Appraisal and Counseling Techniques. . . .	42	75	35
Criteria and Selection of Personnel for Promotion. . .	38	68	26
Analyzing Organizational Behavior	35	74	18
Effective Utilization of Manpower Resources and Allocation	27	50	23
Impact of Government Legislation and Controls on Business	21	59	21
Long-range Planning and Forecasting for Corporate Growth	21	47	19
Impact of Computer Technology.	13	49	11
The Application of Information Technology on Decision Making	13	40	9
Principles and Analysis of Office Systems	11	44	9
Impact of Science and Technology on Business Management.	2	42	11

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management . .	33	80	27
Understanding Group Interaction and Behavior.	33	73	23
Impact of Consumer Behavior on Management.	30	70	23
Management Psychology.	25	75	25
Creativity and Innovation. . .	22	59	15
Social and Cultural Trends and Their Impact on Business Management	19	47	23
Industrial Sociology	13	36	11

TABLE 13

COMMUNICATION
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	53	92	43
Oral Presentation of Reports .	37	72	31
Effective Reading Skills	34	72	34
Listening Skills	33	72	41
Business Letter Writing. . . .	25	63	27
Effective Report Writing . . .	23	58	23
Conference Leadership.	22	59	17

TABLE 14

ECONOMICS
(N=47)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	13	64	9
The Price Mechanism.	13	46	9
Fundamentals of Economics. . .	11	47	13
Economics of Production and Cost	7	36	4
The Economic Systems of the United States.	6	29	4
Comparative Economic Systems .	2	17	9
Economics of Technology and Innovation	2	9	4
International Economics. . . .	0	9	2

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY (N=46)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Inventory Management	30	48	9
Improving Decision Making of Managers	24	63	9
Review of Basic Mathematics. .	24	44	22
Statistical Decision Theory. .	16	43	2
Replacement Management	14	41	5
Statistical Procedures and Methods.	9	23	5
Applying Program Evaluation and Review Techniques (PERT)	7	27	2
Linear Programming	7	18	5
Analytic Geometry.	7	14	2
Probability Theory	2	16	5
Dynamic Programming.	2	16	2
Waiting Lines.	2	9	2
Calculus of Finite Differences	0	7	2
Matrix Algebra	0	5	2
Calculus of Infinite Series. .	0	4	2

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING (N=42)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. .	21	54	12
Applying the Computer to Problems of Business and Management	19	50	10
Fundamentals of Programming for Computer Operations. . .	15	32	7
Mathematics for Digital Computers.	12	29	7

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=22)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
In-plant Training.	48	67	14
Job Analysis and Job Evaluation Methods	35	60	15
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	32	68	18
Maintaining Efficient and Up-To-Date Personnel Records. .	32	43	21
Management and Labor Relations	25	50	5
Salary and Wage Administration	24	67	19
Employee Benefit Plans	20	55	5
Industrial Safety and Medical Services	14	33	10

TABLE 18

FINANCIAL MANAGEMENT
(N=16)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets	44	69	13
Financial Planning and Forecasting	31	44	13
Managerial Accounting	25	56	13
Fundamentals of Financial Reporting and Statement Analysis	25	50	13
New Developments in Equipment Replacement Policy	19	38	13
Taxes	19	38	13

TABLE 19

MANUFACTURING AND PRODUCTION
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Methods Analysis and Work Simplification	20	40	20
Organization and Management of Purchasing Operations	20	20	0
Materials Handling	11	22	22
Inventory Management	11	22	0
Automation	10	30	10
Production Planning and Control Management	10	20	0
Quality Control	9	18	9
Maintenance Planning and Control	9	9	9
Value Analysis	0	20	0
Engineering Economy	0	10	0

TABLE 20

MARKETING
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Marketing. . .	50	69	31
Marketing Management	41	59	12
Brand Marketing.	24	53	6
Fundamentals of Pricing. . . .	20	47	7
Packaging Design and Development.	17	17	6
Product Planning	14	21	7
Marketing Research	13	44	13
Application of Management Science and Computers to Marketing Problems	7	20	13
Physical Distribution Methods.	7	14	7

TABLE 21

SALES MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	33	50	17
Selection and Evaluation of Field Salesmen.	10	10	0
Supervision of Field Salesmen.	9	18	0
Training of Field Salesmen . .	9	18	0
Compensation of Field Salesmen	0	10	0

INTERNATIONAL MANAGEMENT
(N=8)

None of the middle managers in Department Stores indicated a need for any of the ten courses in International Management for themselves or those they supervise.

RESEARCH AND DEVELOPMENT
(N=10)

One manager indicated he "Should Have" the course in Supervision and Management of Research Services. One manager each reported he "Could Use" a course in Evaluation of the Research and Development Programs, and Planning Budgeting and Control of Projects. None of the managers indicated a need for the other two courses listed, nor a need for any of the courses on the part of those they supervise.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-eight percent (N=26) of the 54 middle managers were 40 years of age or younger. This means that almost half have at least 25 more years of productive employment. Ninety-three percent (N=50) had completed high school, 46 percent (N=25) had the bachelor's degree, and seven percent (N=4) had the master's degree. No one had the doctorate. Six percent (N=3) went to business school and six percent (N=3) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 22

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture.	0	1
Business Administration.	11	2
Education.	1	1
Engineering.	1	0
Law.	1	0
Liberal Arts	6	0
Psychology	2	0
Other (not specified).	3	0
Total	25	4

The major areas of work for the middle managers in Department Stores are shown below:

TABLE 23

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	18	36
Finance.	2	4
Industrial Relations	3	6
Marketing and Sales.	17	34
Purchasing and Procurement	4	8
Research and Development	1	2
Traffic and Transportation	1	2
Other (not specified).	4	8
Total	50	100

Methods of Updating

Forty-nine percent (N=26) of the middle managers would take a credit course and 67 percent (N=36) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. Four managers planned to enroll: one planned to earn the bachelor's degree and three the master's. Three of the managers planned to study business administration and one liberal arts.

Eighty-seven percent had no plans for further degree work and their reasons are given below:

TABLE 24

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time.	16	34
Job demands no more education.	12	26
Cannot afford it	5	11
Not interested	4	9
Can do better on my own.	3	6
Not a high school graduate	3	6
Live too far from educational center	1	2
Other (not specified).	3	6
Total	47	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 25

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=54)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics .	21	39
Company in-service training courses.	16	30
Attendance at regional or national meetings of professional societies.	11	20
Managerial development within company. . . .	10	19
Workshops or seminars in liberal arts or humanities	7	13
Short refresher courses at colleges or universities	4	7
Correspondence courses	3	6
Television courses	3	6

Many sources of information were used by the middle managers to keep up with new developments. Table 26 lists these sources:

TABLE 26

SOURCES OF INFORMATION USED IN UPDATING (N=53)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	58	38	2	0	2
In-plant reports and bulletins . .	52	23	9	7	9
Business reports	43	47	6	2	2
Subordinate-superior discussions or meetings.	41	45	5	2	7
Manufacturer's literature.	28	40	17	11	4
Management journals.	20	58	13	2	7
Company in-service courses	16	22	11	20	31
Lectures, conferences, workshops, and seminars.	13	49	11	9	18
Technical books, reports, abstracts, and indexes	7	20	36	32	5
Scientific and technical journals.	7	19	23	46	5
Use of consultants	5	16	23	49	7
Professional society meetings. . .	2	18	14	46	20
College and university evening courses.	2	7	7	77	7
College and university day courses.	0	0	5	90	5

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 27)

TABLE 27

PREFERENCE FOR MEDIA OF COURSE PRESENTATION (N=54)

	Number Managers	Percent Managers
Correspondence courses	18	33
Educational television	17	31
Programmed instruction	16	30
Courses recorded on tapes	12	22
Courses recorded on records	9	17
Two-way telephone courses	2	4
Two-way radio courses	1	2

Company Attitudes Toward Education

Of the 43 managers responding to a question on the attitude of their immediate superior toward continuing their education, 35 percent (N=15) said the superior encouraged them and 63 percent (N=27) said the superior was noncommittal. Two percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities:

TABLE 28

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT (N=49)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	90	0	0	10
Attend professional meetings	56	22	2	20
Hold office in professional societies	43	23	3	31
Attend seminars or workshops away from the company	33	24	3	40
Enroll for advanced work	27	39	2	32
Write technical and professional papers	19	27	0	54
Educational leave of absence	2	8	22	68

Fifty-five percent of the middle managers indicated that they were employed by companies which provided in-service training; 33 percent were not, and 12 percent did not know. Sixty-four percent said the training was entirely on company time, 23 percent said it was partly on company time, three percent said it was not on company time, and ten percent did not know.

Forty percent reported that their company had an educational assistance plan. Forty-seven percent said it did not and 13 percent did not know. Thirty-four percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company as indicated by the 19 managers who responded to this question, follows:

TABLE 29

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	2
About 3/4	0
About 2/3	2
About 1/2	8
About 1/3	1
Less than 1/3	1
Don't know	5
Total	19

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 30

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	0
251 - 300	0
201 - 250	0
151 - 200	2
101 - 150	0
51 - 100	3
50 or less	0
Don't know	14
Total	19

When asked about the effect of available company educational assistance in motivating them to undertake further education, ten percent of the middle managers said it had strongly encouraged them, 30 percent said it had partially influenced them, and 60 percent said it had no effect. There is an inconsistency here: while 40 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and four were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the category of Department Stores, 75 first-line supervisors from nine stores completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 75 first-line supervisors in the category of Department Stores were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job.	70
The Tools and Techniques of Effective Supervision	69
Human Aspect of Management.	68
Decision Making	67
Leadership.	66
Supervisor's Role in Company Economics.	51

Table 31 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 31

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=71)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	50	70	66	93
The Tools and Techniques of Effective Supervision.	47	69	65	95
Decision Making.	46	67	61	89
Supervisor's Role in Company Economics . . .	35	51	54	79
Supervisor's Role in Employee Discipline . .	30	43	60	86
Inter-Departmental Cooperation	21	30	51	73
Employee Training and Evaluation				
Evaluation of Employee Performance	32	46	60	87
Employee Training.	30	43	56	81
Safety	8	12	37	54
The Supervisor and the Union				
Labor Relations.	10	14	26	37
Grievance Procedure and Arbitration.	7	10	29	42
Labor Relations Legislation.	4	6	23	34
Developing Those We Supervise				
Human Aspect of Management	46	68	67	99
Leadership	45	66	66	97
Communications	31	46	58	86
Developing the Work Team	25	35	56	79

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Seventy-eight percent (N=57) of the first-line supervisors were 40 years of age or younger. Ninety-five percent (N=69) were high school graduates, 57 percent (N=43) had the bachelor's degree, and one percent (N=1) had the master's degree; no one had the doctorate. Seven percent (N=5) had gone to business school and three percent (N=2) to trade school. The major fields of study for a degree are indicated in the following table:

TABLE 32

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture	3	0
Business Administration	17	1
Education	2	0
Engineering	1	0
Liberal Arts	18	0
Other (not specified)	2	0
Total	43	1

Below is a listing of the major areas of work for the first-line supervisors in Department Stores:

TABLE 33

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	11	15
Engineering	1	1
Finance	1	1
Marketing and Sales	41	57
Production Control - Records	2	3
Purchasing and Procurement	11	15
Service (yard and labor personnel,etc.)	1	1
Other (not specified)	5	7
Total	73	100

Methods of Updating

Sixty-two percent (N=46) of the first-line supervisors would take a credit course and 65 percent (N=48) would take a non-credit course if they were offered locally.

One of the supervisors was currently enrolled for the bachelor's degree and one for the master's. Twelve were planning to enroll: one for the associate degree, one for the bachelor's, and ten for the master's. The curriculum for those enrolled or planning to enroll was: eight in business administration, three in liberal arts, one in education, and one in another field which was not specified.

For the 71 percent (N=53) of the supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 34

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time.	24	44
Cannot afford it	12	23
Job demands no more education.	8	15
Not interested	4	8
Can do better on my own.	1	2
Other (not specified).	4	8
Total	53	100

First-line supervisors had used a variety of educational methods for updating within the past four years. (Table 35)

TABLE 35

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N-75)

	Number Supervisors	Percent Supervisors
Company in-service training courses.	43	57
Managerial development within company. . . .	23	31
Workshops or seminars on managerial topics .	7	9
Short refresher courses at colleges or universities	5	7
Attendance at regional or national meetings of professional societies	3	4
Workshops or seminars in liberal arts or humanities	3	4

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 36

SOURCES OF INFORMATION USED IN UPDATING (N=71)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins. .	51	42	3	3	1
Subordinate-superior discussions or meetings	49	39	10	1	1
Discussion with company personnel (informal or formal).	44	46	8	1	1
Manufacturer's literature	41	31	15	9	4
Business reports.	37	47	11	1	4
Company in-service courses. . . .	35	33	10	10	12
Management journals	21	28	27	15	9
Lectures, conferences, workshops, and seminars	9	27	26	20	18
Use of consultants.	5	18	11	61	5
College and university evening courses	3	5	8	75	9
College and university day courses	3	2	6	83	6
Technical books, reports, abstracts, and indexes.	2	15	20	60	3
Scientific and technical journals	2	13	16	64	5
Professional society meetings . .	0	9	20	62	9

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 37)

TABLE 37

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=75)

	Number Supervisors	Percent Supervisors
Correspondence courses	31	41
Programmed instruction	27	36
Educational television	18	24
Courses recorded on records.	7	9
Courses recorded on tapes.	4	5
Two-way telephone courses.	3	4
Two-way radio courses.	1	1
Other (not specified).	4	5

Company Attitudes Toward Education

A total of 68 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Twenty-six percent (N=18) said the superior encouraged them; 74 percent (N=50) said he was noncommittal, and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 38

SUPERVISOR'S PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=69)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses. .	84	6	2	8
Attend professional meetings.	49	25	3	23
Enroll for advanced work.	38	33	0	29
Hold office in professional societies	37	30	0	33
Attend seminars or workshops away from the company	18	22	9	51
Write technical and professional papers	11	24	2	63
Educational leave of absence	3	9	23	65

Seventy-one percent of the supervisors indicated that they were employed by companies which provided in-service training; 26 percent said their company did not provide it and three percent did not know. Sixty-eight percent said the training was completely on company time, 22 percent said it was partly on company time, two percent said it was entirely on the men's own time, and eight percent did not know.

Forty percent reported that their company had an educational assistance plan; 49 percent said it did not, and 11 percent did not know. Fifty-two percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 33 supervisors who answered this question, is shown in the table below:

TABLE 39

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	3
About 3/4	0
About 2/3	1
About 1/2	23
About 1/3	1
Less than 1/3	0
Don't know	5
Total	33

Table 40 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 40

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	1
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	1
51 - 100	4
50 or less	1
Don't know	25
Total	32

When asked what the effect of available financial assistance was on their motivation to undertake further education, six percent of the supervisors said it strongly encouraged them, 32 percent said it partially influenced them, and 62 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 38 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two (3%) of the 75 respondents were actually enrolled and 12 (16%) were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN DEPARTMENT STORES WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the category of Department Stores as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were in general slightly higher.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Department Stores N=31	Total Report N=705
Communication in the Organization	79	59
Effective Written Communications	63	50
Working Effectively with Individuals and Groups	61	*
Effective Speaking	59	50
Performance Appraisal and Counseling Techniques	59	*
Human Aspect of Management	52	*
Long-range Planning and Forecasting for Corporate Growth	50	50
Improving Decision Making of Managers	50	*
Management Development	*	53
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Department Stores N=31	Total Report N=705
Effective Written Communications	70	74
Effective Speaking	66	67
Improving Decision Making of Managers	64	54
Working Effectively with Individuals and Groups	64	66
Management Development	61	56
Human Aspect of Management	59	54
Communication in the Organization	57	65
Effective Reading Skills	55	62
Listening Skills	55	62
Managerial Motivation	52	*
Performance Appraisal and Counseling Techniques	52	57

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Department Stores and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Department Stores N=54	Total Report N=1,202
Working Efficiently with Individuals	71	65
Management Development	54	66
Effective Communication in the Organization	53	64
Supervisory Training and Employee Development	52	53

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Department Stores N=54	Total Report N=1,202
Working Efficiently with Individuals	57	62
Supervisory Training and Employee Development. . . .	*	61
Effective Communication in the Organization.	*	56
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Department Stores N=75	Total Report N=1,713
Fundamentals of the Supervisor's Job	70	64
The Tools and Techniques of Effective Supervision. .	69	55
Human Aspect of Management	68	53
Decision Making.	67	54
Leadership	66	57
Supervisor's Role in Company Economics	51	*
Communications	*	51

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63 Banks
M-64 Chemical, Rubber, and Plastic Products
M-65 Construction
M-66 Department Stores
M-67 Electrical Machinery
M-68 Fabricated Metal Products
M-69 Food and Kindred Products
M-70 Insurance
M-71 Machinery (Except Electrical)
M-72 Petroleum Refining
M-73 Primary Metals
M-74 Professional, Scientific, and Controlling Instruments
M-75 Railroads
M-76 Stone, Clay, and Glass Products
M-77 Telephone and Telegraph
M-78 Transportation
M-79 Transportation Equipment
M-80 Gas and Electric Utilities
M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1 Chemical
E-2 Civil
E-3 Electrical-Electronics
E-4 Electrical-Power
E-5 Engineering-General
E-6 Industrial
E-7 Mechanical
E-8 Metallurgical
E-9 Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE ELECTRICAL MACHINERY INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN THE
ELECTRICAL MACHINERY INDUSTRY
IN PENNSYLVANIA

M-67

Samuel S. Dubin, Ph.D.
Everett Alderman, Ed.D.
H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES 2

SUMMARY 2

  Top Management 2
  Middle Management 2
  First-Line Supervision 3

TOP MANAGEMENT 3

  Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT 8

  Educational Needs Within Areas of Managerial Responsibility 8
  Background Information of Middle Managers 16

    Personal, Educational and Professional Background 16
    Methods of Updating 17
    Company Attitudes Toward Education 19

FIRST-LINE SUPERVISION 21

  Educational Needs 21
  Background Information of First-Line Supervisors 22

    Personal, Educational, and Professional Background 22
    Methods of Updating 24
    Company Attitudes Toward Education 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN ELECTRICAL MACHINERY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT . . . 28

  Top Management 28
  Middle Management 29
  First-Line Supervision 30

RECOMMENDATIONS. 31

  For the University. 31
  For Business and Industry 31
  For the Individual Manager and Supervisor 32
  For Professional Associations 32

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE ELECTRICAL MACHINERY INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 384 managers and supervisors from 24 companies in the Electrical Machinery industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, the only one checked by 50 percent or more of top managers was Long-Range Planning and Forecasting for Corporate Growth. (Page 3) However, nine other courses were said to be needed by between 40 and 50 percent.

For those they supervise, 50 percent or more of top managers said 13 courses were needed, in the areas of communications; behavioral science and management; general management; and industrial relations and personnel management. (Page 3)

Middle Management

Fifty percent or more of the middle managers expressed a need for three of 54 listed courses, in areas of management development, human relations, and communications. (Page 8) Twelve other courses were in the 40 to 50 percent "Should Have" range.

Those supervised by middle management were thought by 50 percent or more of the managers to need seven of the listed courses. (Page 8)

The educational level was high, with 51 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Page 16)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported needing six out of 16 courses in the groupings of principles of supervision and developing those we supervise. (Page 21) Five other courses were in the 40 to 50 percent range.

Twenty-nine percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Page 22)

TOP MANAGEMENT

In the industrial category of Electrical Machinery, 74 top managers from 24 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

Long-Range Planning and Forecasting for Corporate Growth was the only course with a "Should Have" need of 50 percent or more, at 53 percent. However, 50 percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communication	74
Effective Speaking	67
Working Effectively with Individuals and Groups	64
Effective Reading Skills	63
Communication in the Organization	63
Listening Skills	61
Improving Decision Making of Managers	59
Creativity and Innovation	57
Human Aspect of Management	55
Management Development	54
Management Reporting Systems	51
Performance Appraisal and Counseling Techniques	50
Criteria and Selection of Personnel	50

Tables 1 to 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. The "Subordinates' Needs" column shows the subjects needed by those supervised by top management.

TABLE 1

GENERAL MANAGEMENT
(N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Long-Range Planning and Forecasting for Corporate Growth	53	87	33
Overall Strategy and Goals	49	88	30
Policy Formation	44	83	28
Improving Decision Making of Managers	41	84	59
Industrial Organization and Administration	37	78	46
Impact of Computer Technology. . .	34	78	43
Effective Utilization of Manpower Resources and Allocation	34	65	40
Management Reporting Systems . . .	33	76	51
Managing Major Change in Organizations	31	59	24
Ethical Considerations in Business	23	56	32
Impact of Science and Technology on Business Management	19	61	28
Management of Research and Development	18	43	23
Impact of Government Legislation and Controls on Business	14	50	23
Impact of Multinational Aspects of Planning and Control	13	29	9

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization.	47	78	63
Human Aspect of Management	39	78	55
Managerial Motivation	38	85	36
Working Effectively with Individuals and Groups	30	76	64
Creativity and Innovation.	29	68	57
Political, Social, and Cultural Trends and Their Impact on Business Management.	1	32	10

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications.	47	76	74
Effective Speaking	47	73	67
Effective Reading Skills.	37	82	63
Listening Skills	34	81	61

TABLE 4

ECONOMICS
(N=69)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	17	46	12
Comparative Economic Systems . .	4	26	10

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=69)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods	13	61	14
Statistical Decision Theory . . .	12	55	20

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Performance Appraisal and Counseling Techniques	41	71	50
Management Development	39	81	54
Incentives	31	73	28
Criteria and Selection of Personnel	31	65	50
Personnel Policy Affecting Wage and Salary Structure	19	53	24
Personnel Policy Affecting Labor-Management Relations	17	55	30
Personnel Policy Affecting Employment Practices	15	46	28

TABLE 7

FINANCIAL MANAGEMENT
(N=69)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs Percent
Managerial Accounting and Budgeting	45	65	43
Capital Budgeting	39	61	31
Fundamentals of Financial Reporting and Statement Analysis	36	69	38
Financial Planning and Forecasting	35	67	23

TABLE 8

MANUFACTURING AND PRODUCTION
(N=68)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities	26	52	35
Operations Planning and Control	15	41	35
Operations Research Applied to Production	9	37	31

TABLE 9

MARKETING
(N=66)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Pricing	44	65	45
Product Planning	24	61	27
Marketing Research	23	57	16
Logistics Planning	14	42	22

TABLE 10

INTERNATIONAL MANAGEMENT
(N=66)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding	8	38	8
International Economic Analysis	7	30	2

MIDDLE MANAGEMENT

In the industrial category of Electrical Machinery, 135 middle managers from 24 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communications (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	61
Working Efficiently with Individuals	57
Effective Communication in the Organization	53

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Supervisory Training and Employee Development	68
Working Efficiently with Individuals	65
Effective Communication in the Organization	57
Performance Appraisal and Counseling Techniques	53
Listening Skills	53
Oral Presentation of Reports	51
Effective Report Writing	51

The tables following, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Electrical Machinery category.

TABLE 11

GENERAL MANAGEMENT
(N=122)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development.	61	93	48
Working Efficiently with Individuals	57	88	65
Supervisory Training and Employee Development	45	73	68
Performance Appraisal and Counseling Techniques	44	85	53
Criteria and Selection of Personnel for Promotion	39	79	33
Long-Range Planning and Forecasting for Corporate Growth	28	65	19
Analyzing Organizational Behavior .	25	70	21
Effective Utilization of Manpower Resources and Allocation.	25	61	28
Principles and Analysis of Office Systems	21	51	24
The Application of Information Technology on Decision Making	19	58	22
Impact of Computer Technology . . .	18	60	24
Impact of Science and Technology on Decision Making	15	52	18
Impact of Government Legislation and Controls on Business	11	36	16

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=117)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management.	35	78	34
Creativity and Innovation	32	86	43
Understanding Group Interaction and Behavior.	22	69	31
Management Psychology	21	65	27
Industrial Sociology.	6	37	16
Social and Cultural Trends and Their Impact on Business Management . .	5	28	9
Impact of Consumer Behavior on Management...	3	24	8

TABLE 13

COMMUNICATION
(N=120)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization.	53	91	57
Oral Presentation of Reports. . .	42	76	51
Effective Report Writing.	42	72	51
Conference Leadership	38	72	41
Effective Reading Skills.	37	79	46
Listening Skills	35	74	53
Business Letter Writing	30	67	44

TABLE 14

ECONOMICS
(N=115)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	27	70	29
The Price Mechanism	22	64	18
Economic Trends	14	42	6
Economics of Technology and Innovation	9	31	9
Fundamentals of Economics	6	39	16
International Economics	5	22	7
Comparative Economic Systems. . .	4	18	8
The Economic Systems of the United States	3	18	8

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=115)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers.	30	73	29
Inventory Management.	25	47	26
Applying Program Evaluation and Review Techniques (PERT). . . .	21	55	21
Review of Basic Mathematics . . .	20	40	20
Replacement Management.	19	49	16
Statistical Procedures and Methods	18	57	33
Statistical Decision Theory . . .	17	62	20
Probability Theory.	14	51	23
Linear Programming.	10	32	12
Dynamic Programming	8	33	12
Waiting Lines	6	30	6
Analytic Geometry	5	22	9
Matrix Algebra	4	23	10
Calculus of Infinite Series . . .	4	14	8
Calculus of Finite Differences. .	2	13	7

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=117)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management. . .	24	64	25
Data Systems and Processing . . .	21	57	26
Fundamentals of Programming for Computer Operations	18	40	23
Mathematics for Digital Computers	10	26	16

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=41)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion	41	61	37
In-Plant Training	31	68	29
Management and Labor Relations . . .	30	60	24
Salary and Wage Administration . . .	22	57	19
Job Analysis and Job Evaluation Methods	19	61	31
Maintaining Efficient and Up-To-Date Personnel Records	15	56	32
Employee Benefit Plans	11	30	14
Industrial Safety and Medical Services	8	36	18

TABLE 18

FINANCIAL MANAGEMENT
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets	45	69	27
Managerial Accounting	32	56	18
Fundamentals of Financial Reporting and Statement Analysis	31	56	25
Financial Planning and Forecasting .	25	47	19
New Developments in Equipment Replacement Policy	23	57	20
Taxes	9	31	9

TABLE 19

MANUFACTURING AND PRODUCTION
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Value Analysis	49	77	44
Production Planning and Control Management	45	73	45
Inventory Management	40	55	36
Automation	36	70	33
Maintenance Planning and Control	36	59	46
Engineering Economy	34	66	38
Methods Analysis and Work Simplification	33	69	49
Quality Control	32	60	36
Organization and Management of Purchasing Operations	32	60	30
Materials Handling	32	58	45

TABLE 20

MARKETING
(N=27)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Pricing	44	63	22
Product Planning	42	61	31
Marketing Management	23	38	12
Fundamentals of Marketing	22	41	15
Packaging Design and Development	15	23	15
Marketing Research	13	38	13
Application of Management Science and Computers to Marketing Problems	12	36	16
Physical Distribution Methods	8	20	8
Brand Marketing	4	4	4

TABLE 21

SALES MANAGEMENT
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Supervision of Field Salesmen	29	29	4
Motivating Salesmen	25	29	4
Compensation of Field Salesmen	21	29	4
Selection and Evaluation of Field Salesmen	20	28	4
Training of Field Salesmen	17	34	4

TABLE 22

INTERNATIONAL MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Monetary Exchange Problems	6	6	6
International Understanding	0	11	6
Commercial Policy and Trade Control	0	11	6
International Law	0	6	12
International Economic Organizations	0	6	6
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	0	6	6
United States Foreign Economic Policy	0	6	6
International Economic Analysis	0	0	6
Sources of Funds: Financing of Day-to-Day Transactions	0	0	6
Appraising and Developing Foreign Markets	0	0	5

TABLE 23

RESEARCH AND DEVELOPMENT
(N=37)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Evaluation of the Research and Development Programs	46	65	27
Planning Budgeting and Control of Products	39	75	31
Guidelines for Selecting and Appraising New Projects	39	72	31
Supervision and Management of Research Services	35	67	29
Building Research and Development Teams	34	65	26

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-eight percent (N=51) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-six percent (N=130) had completed high school, 51 percent (N=69) had the bachelor's degree, and ten percent (N=14) had the master's degree. Three persons had the doctorate. Six percent (N=8) went to business school and nine percent (N=12) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below.

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRATUATES

	Number Bachelor's	Number Master's	Number Doctor's
Agriculture	1	0	0
Architecture	1	0	0
Business Administration	10	2	0
Education	4	2	0
Engineering	36	7	1
Law	0	1	0
Liberal Arts	9	0	0
Psychology	6	2	2
Other (not specified)	2	0	0
Total	69	14	3

The major areas of work for the middle managers in Electrical Machinery are shown below.

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	18	13
Engineering	28	22
Finance	11	8
Industrial Relations	7	5
Maintenance	3	2
Manufacturing	34	27
Marketing and Sales	12	9
Production Control — Records	5	4
Purchasing and Procurement	7	5
Research and Development	4	3
Traffic and Transportation	3	1
Other (not specified)	2	1
Total	134	100

Methods of Updating

Sixty-nine percent (N=92) of the middle managers would take a credit course and 77 percent (N-103) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree and one was enrolled for the doctorate. Sixteen managers planned to enroll and ten of these planned to earn the master's degree; 11 planned to study business administration, three engineering, and two education. Seventy-six percent had no plans for further degree work and their reasons are given below.

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL DEGREE WORK

	Number Managers
Don't have the time	38
Live too far from educational center	15
Job demands no more education	13
Cannot afford it	7
Can do better on my own	5
Not interested	5
Not a high school graduate	3
Other (not-specified)	16
Total	102

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=135)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics	63	47
Company in-service training courses	55	41
Attendance at regional or national meetings of professional societies	54	40
Managerial development within company	41	30
Short refresher courses at colleges or universities	19	14
Correspondence courses	19	14
Workshops or seminars in liberal arts or humanities	4	3
Television courses	3	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=132)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	59	34	3	2	2
Subordinate-superior discussions or meetings	57	34	5	3	1
In-plant reports and bulletins	51	39	3	2	5
Business reports	33	42	15	9	1
Manufacturer's literature	31	39	16	13	1
Management Journals	21	45	19	9	6
Technical books, reports, abstracts, and indexes	20	41	23	14	2
Scientific and technical journals	18	42	23	16	1
Lectures, conferences, workshops, and seminars	17	38	26	8	11
Company in-service courses	10	28	18	22	22
Professional society meetings	9	28	33	28	2
College-university evening courses	7	6	10	63	14
Use of consultants	4	12	34	47	3
College-university day courses	2	1	7	86	4

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=135)

	Number Managers	Percent Managers
Programmed instruction	58	43
Correspondence courses	50	37
Educational television	42	31
Courses recorded on tapes.	17	13
Courses recorded on records.	15	11
Two-way radio courses.	8	6
Two-way telephone courses.	7	5

Company Attitudes Toward Education

Of the 132 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 38 percent (N=50) said the superior encouraged them and 61 percent (N=81) said the superior was noncommittal. One person said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=128)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	84	6	1	9
Attend professional meetings	77	17	2	4
Write technical and professional papers	76	12	0	12
Enroll for advanced work .	75	11	0	14
Hold office in professional societies.	75	18	1	6
Attend workshops or seminars away from the company. . .	62	19	5	14
Educational leave of absence	11	22	7	60

Fifty-nine percent of the middle managers were employed by companies which provided in-service training; 38 percent were not, and three percent did not know. Thirty-three percent said the training was entirely on company time, 44 percent said it was partly on company time, 11 percent said it was not on company time, and 12 percent did not know.

Eighty-eight percent reported that their company had an educational assistance plan. Nine percent said it did not and three percent did not know. Sixty-six percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below.

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	76
About 3/4	9
About 2/3	5
About 1/2	16
About 1/3	0
Less than 1/3	1
Don't know	7
Total	114

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	31
251 - 300	10
201 - 250	3
151 - 200	5
101 - 150	2
51 - 100	3
50 or less	0
Don't know	57
Total	111

When asked about the effect of available company educational assistance in motivating them to undertake further education, 20 percent of the middle managers said it had strongly encouraged them, 35 percent said it had partially influenced them, and 45 percent said it had no effect. There is an inconsistency here: while 55 percent said the availability of aid motivated them to some extent, only three persons were actually enrolled and 16 were planning to enroll.

FIRST-LINE SUPERVISION

In the industrial category of Electrical Machinery, 175 first-line supervisors from 24 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 175 first-line supervisors in the category of Electrical Machinery were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job	62
The Tools and Techniques of Effective Supervision	59
Leadership	54
Human Aspect of Management	52
Decision Making	52
Communications	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=170)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . . .	104	62	154	92
The Tools and Techniques of Effective Supervision	100	59	147	87
Decision Making	86	52	139	84
Supervisor's Role in Employee Discipline .	79	48	138	84
Inter-Departmental Cooperation	73	44	132	79
Supervisor's Role in Company Economics . .	73	43	140	83
Employee Training and Evaluation				
Evaluation of Employee Performance	75	45	139	83
Safety	58	35	121	73
Employee Training	53	31	120	71
The Supervisor and the Union				
Grievance Procedure and Arbitration . . .	62	37	112	67
Labor Relations	53	31	114	67
Labor Relations Legislation	22	13	95	57
Developing Those We Supervise				
Leadership	91	54	150	89
Human Aspect of Management	87	52	144	86
Communications	86	51	143	85
Developing the Work Team	68	41	133	80

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty-five percent (N=78) of the first-line supervisors were 40 years of age or younger. Eighty-four percent (N=147) were high school graduates, 29 percent (N=50) had the bachelor's degree, and two percent (N=3) had the master's degree; no one had the doctorate. Six percent (N=10) had gone to business school and 19 percent (N=33) to trade school. The major fields of study are indicated in the following table.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture	1	0
Business Administration	7	1
Education	2	0
Engineering	34	2
Law	1	0
Liberal Arts	2	0
Psychology	2	0
Other (not specified)	1	0
Total	50	3

The major areas of work for the first-line supervisors in Electrical Machinery are shown in the following table:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	11	6
Engineering	27	16
Finance	7	4
Industrial Relations	6	3
Maintenance	11	6
Manufacturing	75	45
Marketing and Sales	1	1
Production Control - Records	10	6
Purchasing and Procurement	2	1
Research and Development	4	2
Service (yard and labor personnel, etc.)	4	2
Traffic and Transportation	3	2
Other (not specified)	11	6
Total	172	100

Methods of Updating

Sixty-one percent (N=104) of the first-line supervisors would take a credit course and 71 percent (N=123) would take a non-credit course if they were offered locally.

Ten of the supervisors were currently enrolled and 18 were planning to enroll in a degree program. Business administration and engineering were the most popular major fields of study. For the 124 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors
Don't have the time.	45
Not a high school graduate	18
Cannot afford it	16
Live too far from educational center	10
Job demands no more education.	8
Not interested	6
Can do better on my own.	5
Other (not specified).	16
Total	124

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=175)

	Number Supervisors	Percent Supervisors
Company in-service training courses. . .	82	47
Managerial development within company. .	65	37
Workshops or seminars on managerial topics	55	31
Attendance at regional or national meetings of professional societies . .	34	19
Short refresher courses at colleges or universities.	21	12
Correspondence courses	21	12
Workshops or seminars in liberal arts or humanities	6	3
High school courses to improve job performance.	5	3
Television courses	5	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table.

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=163)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins .	54	35	5	3	3
Discussion with company personnel (informal or formal). .	49	45	4	1	1
Subordinate-superior discussions or meetings.	37	46	11	3	3
Manufacturer's literature. . . .	20	46	13	14	7
Technical books, reports, abstracts, and indexes	14	40	25	19	2
Management journals.	13	34	25	18	10
Scientific and technical journals	12	32	30	23	3
Lectures, conferences, workshops, and seminars.	12	31	24	15	18
Company in-service courses . . .	10	32	12	17	29
Business reports	9	33	31	23	4
Use of consultants	7	19	24	45	5
Professional society meetings. .	5	16	24	51	4
College-university evening courses.	3	11	16	60	10
College-university day courses .	1	3	5	86	5

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preferences for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=175)

	Number Supervisors	Percent Supervisors
Correspondence courses	81	46
Programmed instruction	81	46
Educational television	53	30
Courses recorded on records.	25	14
Courses recorded on tapes.	20	11
Two-way telephone courses.	16	9
Two-way radio courses.	8	5

Company Attitudes Toward Education

A total of 166 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-eight percent (N=79) said the superior encouraged him; 51 percent said he was noncommittal, and two individuals said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=161)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	80	5	1	14
Attend professional meetings .	69	8	5	18
Enroll for advanced work . . .	63	16	1	20
Hold office in professional societies.	57	17	1	25
Write technical and professional papers.	48	13	0	39
Attend seminars or workshops away from the company. . . .	43	18	7	32
Educational leave of absence .	15	9	9	67

Fifty-nine percent of the supervisors were employed by companies which provided in-service training; 35 percent said their company did not provide it and six percent did not know. Thirty-five percent said the training was completely on company time, 30 percent said it was partly on company time, 15 percent said it was entirely on the men's own time, and 20 percent did not know.

Seventy-five percent reported that their company had an educational assistance plan; 13 percent said it did not, and 12 percent did not know. Fifty-seven percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below.

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	58
About 3/4	11
About 2/3	7
About 1/2	21
About 1/3	1
Less than 1/3	1
Don't know	26
Total	125

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	18
251 - 300	8
201 - 250	5
151 - 200	2
101 - 150	0
51 - 100	4
50 or less	0
Don't know	84
Total	121

When asked what the effect of available financial assistance was on their motivation to undertake further education, 21 percent of the supervisors said it strongly encouraged them, 33 percent said it partially influenced them, and 46 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 54 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only ten of the 175 respondents were actually enrolled and 18 were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN ELECTRICAL MACHINERY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Electrical Machinery as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar. The only notable difference was in the educational needs of top management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Electrical Machinery N=74	Total Report N=705
Communication in the Organization.	*	59
Management Development	*	53
Long-Range Planning and Forecasting for Corporate Growth	53	50
Effective Speaking	*	50
Effective Written Communication.	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Electrical Machinery N=74	Total Report N=705
Effective Written Communication	74	74
Effective Speaking	67	67
Working Effectively with Individuals and Groups	64	66
Communication in the Organization	63	65
Effective Reading Skills	63	62
Listening Skills	61	62
Performance Appraisal and Counseling Techniques	50	57
Management Development	54	56
Human Aspect of Management	55	54
Improving Decision Making of Managers	59	54
Creativity and Innovation	57	*
Management Reporting Systems	51	*
Criteria and Selection of Personnel	50	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent of more of the middle managers in Electrical Machinery and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Electrical Machinery N=135	Total Report N=1202
Management Development	61	66
Working Efficiently with Individuals	57	65
Effective Communication in the Organization	53	64
Supervisory Training and Employee Development	*	53

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Electrical Machinery N=135	Total Report N=1202
Supervisory Training and Employee Development. . .	68	61
Working Efficiently with Individuals	65	62
Effective Communication in the Organization. . . .	57	56
Performance Appraisal and Counseling Techniques. .	53	*
Listening Skills	53	50
Oral Presentation of Reports	51	*
Effective Report Writing	51	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they needed the following six of a listing of 16 subjects:

	"Should Have" Percent	
	Electrical Machinery N=175	Total Report N=1713
Fundamentals of the Supervisor's Job	62	64
Leadership	54	57
The Tools and Techniques of Effective Supervision.	59	55
Decision Making.	52	54
Human Aspect of Management	52	53
Communications	51	51

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications -- such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient location.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their emplyees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additioanl in-service educational programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendence at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($ .75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FABRICATED METAL PRODUCTS INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FABRICATED METAL PRODUCTS INDUSTRY IN PENNSYLVANIA

M-68

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION. 1

SURVEY PROCEDURES 2

SUMMARY 2

- Top Management 2
- Middle Management. 2
- First-Line Supervision 3

TOP MANAGEMENT. 3

- Educational Needs Within Areas of Managerial Responsibility. . . . 3

MIDDLE MANAGEMENT 8

- Educational Needs Within Areas of Managerial Responsibility. . . . 8
- Background Information of Middle Managers. 15
  - Personal, Educational, and Professional Background. 15
  - Methods of Updating 16
  - Company Attitudes Toward Education. 18

FIRST-LINE SUPERVISION. 20

- Educational Needs. 20
- Background Information of First-Line Supervisors 21
  - Personal, Educational, and Professional Background. 21
  - Methods of Updating 22
  - Company Attitudes Toward Education. 25

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN FABRICATED METAL PRODUCTS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT . . . 27

- Top Management 27
- Middle Management. 28
- First-Line Supervision 29

RECOMMENDATIONS 30

- For the University 30
- For Business and Industry. 30
- For the Individual Manager and Supervisor. 31
- For Professional Associations. 31

LIST OF TABLES

PAGE

1. Top Management — General Management 4
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 5
4. Top Management — Economics 5
5. Top Management — Quantitative Methods Applied to Business and Industry 6
6. Top Management — Industrial Relations and Personnel Management 6
7. Top Management — Financial Management 6
8. Top Management — Manufacturing and Production 7
9. Top Management — Marketing 7
10. Top Management — International Management 7
11. Middle Management — General Management 9
12. Middle Management — Behavioral Science and Management 10
13. Middle Management — Communication 10
14. Middle Management — Economics 11
15. Middle Management — Quantitative Methods Applied to Business and Industry 11
16. Middle Management — Computer Operations and Data Processing . . . 12
17. Middle Management — Industrial Relations and Personnel Management 12
18. Middle Management — Financial Management 13
19. Middle Management — Manufacturing and Production 13
20. Middle Management — Marketing 14
21. Middle Management — Sales Management 14

PAGE

22. Middle Management — Major Fields of Study of College Graduates 15

23. Middle Management — Major Areas of Work 15

24. Middle Management — Reasons for Not Undertaking Additional Formal Education 16

25. Middle Management — Educational Methods Used for Updating Within the Past Four Years 16

26. Middle Management — Sources of Information Used in Updating . . . 17

27. Middle Management — Preference for Media of Course Presentation 18

28. Managers' Perception of Company Policy Toward Professional Development 18

29. Middle Management — Proportion of Tuition Paid 19

30. Middle Management — Maximum Amount of Tuition Paid Per Year . . . 19

31. First-Line Supervision Training Needs 21

32. First-Line Supervision — Major Areas of Work 22

33. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 22

34. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 23

35. First-Line Supervision — Sources of Information Used in Updating 24

36. First-Line Supervision — Preference for Media of Course Presentation 25

37. Supervisors' Perception of Company Policy Toward Professional Development 25

38. First-Line Supervision — Proportion of Tuition Paid 26

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FABRICATED METAL PRODUCTS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 90 managers and supervisors from ten companies in the Fabricated Metal Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, seven were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said two courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management and communication out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need two of the listed courses. (Page 8)

Only 16 percent had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for nine out of 16 courses. (Page 20)

Only two percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Fabricated Metal Products, 13 top managers from ten companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Working Effectively with Individuals and Groups	69
Management Development.	58
Communication in the Organization	54
Effective Utilization of Manpower Resources and Allocation. . .	54
Human Aspect of Management.	54
Operations Planning and Control	50
Policy Formation.	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications	75
Effective Speaking	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervised.

TABLE 1

GENERAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Utilization of Manpower Resources and Allocation	54	92	15
Policy Formation	50	92	25
Industrial Organization and Administration	46	100	23
Overall Strategy and Goals . .	46	84	38
Improving Decision Making of Managers	46	77	31
Management Reporting Systems .	46	77	8
Impact of Science and Technology on Business Management.	38	69	8
Long-range Planning and Forecasting for Corporate Growth	33	83	25
Management of Research and Development.	33	66	17
Impact of Computer Technology.	23	69	31
Managing Major Change in Organizations.	15	77	15
Ethical Considerations in Business	8	39	31
Impact of Government Legislation and Controls on Business	0	77	8
Impact of Multinational Aspects of Planning and Control.	0	8	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Effectively with Individuals and Groups	69	92	38
Communication in the Organization	54	92	46
Human Aspect of Management . .	54	77	38
Managerial Motivation.	38	92	31
Creativity and Innovation. . .	33	83	42
Political, Social, and Cultural Trends and Their Impact on Business Management.	0	17	0

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	33	83	50
Listening Skills	33	66	33
Effective Reading Skills . . .	18	82	36
Effective Written Communications	17	84	75

TABLE 4

ECONOMICS
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	8	16	17
Comparative Economic Systems .	0	0	9

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods.	25	50	0
Statistical Decision Theory. .	17	25	8

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	58	83	33
Personnel Policy Affecting Labor-Management Relations .	42	100	42
Performance Appraisal and Counseling Techniques. . . .	42	75	42
Incentives	33	66	33
Personnel Policy Affecting Wage and Salary Structure. .	25	67	17
Personnel Policy Affecting Employment Practices	25	58	33
Criteria and Selection of Personnel.	17	67	8

TABLE 7

FINANCIAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Financial Planning and Forecasting.	33	66	0
Fundamentals of Financial Reporting and Statement Analysis	23	77	15
Managerial Accounting and Budgeting.	17	59	17
Capital Budgeting.	8	66	0

TABLE 8

MANUFACTURING AND PRODUCTION
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Operations Planning and Control.	50	58	17
Planning and Utilization of Physical Facilities.	46	84	31
Operations Research Applied to Production.	9	27	18

TABLE 9

MARKETING
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Pricing.	33	66	17
Product Planning	33	66	17
Logistics Planning	25	42	8
Marketing Research	15	53	15

TABLE 10

INTERNATIONAL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. .	0	17	8
International Economic Analysis	0	9	0

MIDDLE MANAGEMENT

In the industrial category of Fabricated Metal Products, 31 middle managers from ten companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Effective Communication in the Organization	75
Management Development	71
Working Efficiently with Individuals	69
Supervisory Training and Employee Development	62
Performance Appraisal and Counseling Techniques	52
Listening Skills	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Supervisory Training and Employee Development	55
Working Efficiently with Individuals	52

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Fabricated Metal Products category.

TABLE 11

GENERAL MANAGEMENT
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	71	96	46
Working Efficiently with Individuals.	69	97	52
Supervisory Training and Employee Development	62	96	55
Performance Appraisal and Counseling Techniques. . . .	52	93	34
Principles and Analysis of Office Systems	43	79	18
Criteria and Selection of Personnel for Promotion. . .	37	89	44
Effective Utilization of Manpower Resources and Allocation	37	78	30
Long-range Planning and Forecasting for Corporate Growth	32	57	11
Analyzing Organizational Behavior	31	62	28
Impact of Government Legislation and Controls on Business	26	48	15
The Application of Information Technology on Decision Making.	22	52	11
Impact of Computer Technology.	18	57	11
Impact of Science and Technology on Business Management.	17	58	14

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . .	41	78	33
Understanding Group Interaction and Behavior.	41	78	33
Human Aspect of Management . .	33	89	48
Management Psychology.	30	67	19
Social and Cultural Trends and Their Impact on Business Management.	18	54	14
Impact of Consumer Behavior on Management.	18	39	4
Industrial Sociology	11	67	19

TABLE 13

COMMUNICATION
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	75	93	46
Listening Skills	50	75	46
Business Letter Writing. . . .	48	81	41
Effective Reading Skills . . .	48	81	41
Effective Report Writing . . .	46	77	38
Oral Presentation of Reports .	44	70	33
Conference Leadership.	43	86	25

TABLE 14

ECONOMICS
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	33	63	22
The Price Mechanism	29	65	18
Economic Trends	22	59	19
Fundamentals of Economics	15	56	15
The Economic Systems of the United States	4	43	11
Comparative Economic Systems	4	33	11
Economics of Technology and Innovation	4	30	4
International Economics	0	22	7

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Replacement Management	37	70	26
Inventory Management	32	75	29
Improving Decision Making of Managers	25	82	14
Statistical Decision Theory	21	75	14
Review of Basic Mathematics	19	67	26
Applying Program Evaluation and Review Techniques (PERT)	14	64	7
Waiting Lines	11	32	4
Statistical Procedures and Methods	11	25	7
Linear Programming	7	39	4
Dynamic Programming	7	36	7
Probability Theory	7	18	4
Analytic Geometry	4	22	4
Matrix Algebra	4	11	0
Calculus of Finite Differences	4	4	0
Calculus of Infinite Series	4	4	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management	28	52	10
Fundamentals of Programming for Computer Operations. . .	25	39	14
Data Systems and Processing. .	21	60	21
Mathematics for Digital Computers.	11	25	11

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management and Labor Relations	55	82	27
Job Analysis and Job Evaluation Methods	42	59	17
Maintaining Efficient and Up-To-Date Personnel Records. .	18	54	9
In-plant Training.	17	84	33
Employee Benefit Plans	17	42	0
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	9	64	9
Salary and Wage Administration	8	58	8
Industrial Safety and Medical Services	8	50	17

TABLE 18

FINANCIAL MANAGEMENT
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets	36	45	9
New Developments in Equipment Replacement Policy	18	54	18
Financial Planning and Forecasting	18	54	9
Fundamentals of Financial Reporting and Statement Analysis	9	45	9
Taxes	9	45	9
Managerial Accounting	9	36	9

TABLE 19

MANUFACTURING AND PRODUCTION
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Inventory Management	75	88	19
Automation	59	83	29
Production Planning and Control Management	56	94	25
Quality Control	53	82	18
Value Analysis	50	75	19
Maintenance Planning and Control	47	71	18
Engineering Economy	44	75	13
Methods Analysis and Work Simplification	41	82	29
Materials Handling	39	72	11
Organization and Management of Purchasing Operations	38	82	25

TABLE 20

MARKETING
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	43	72	29
Fundamentals of Pricing. . . .	29	43	14
Packaging Design and Development.	14	43	14
Fundamentals of Marketing. . .	14	43	0
Physical Distribution Methods.	14	28	0
Brand Marketing.	0	43	0
Marketing Management	0	43	0
Marketing Research	0	43	0
Application of Management Science and Computers to Marketing Problems	0	29	0

TABLE 21

SALES MANAGEMENT
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	43	43	14
Selection and Evaluation of Field Salesmen	43	43	0
Compensation of Field Salesmen	29	43	0
Training of Field Salesmen . .	29	43	0
Supervision of Field Salesmen.	29	29	14

INTERNATIONAL MANAGEMENT
(N=4)

One of the four managers said he "Should Have" the course in Appraising and Developing Foreign Markets, and "Could Use" the other nine courses, such as International Understanding and International Economic Analysis. No managers indicated a need for any of the courses on the part of those they supervise.

RESEARCH AND DEVELOPMENT
(N=4)

One manager indicated that he "Could Use" each of the five courses listed, such as Supervision and Management of Research Services and Planning Budgeting and Control of Products. No one said he "Should Have" any of the courses, nor that those he supervised needed any of them.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-nine percent (N=9) of the 31 middle managers were 40 years of age or younger. Ninety-seven percent (N=30) had completed high school, 16 percent (N=5) had the bachelor's degree, and six percer (N=2) had the master's degree. No one had the doctorate. Ten percent (N=3) went to business school and six percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 22

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration.	2	2
Engineering.	1	0
Liberal Arts	2	0
Total	5	2

The major areas of work for the middle managers in the Fabricated Metal Products industry are shown below:

TABLE 23

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	7	26
Engineering.	1	3
Finance.	3	10
Industrial Relations	2	7
Manufacturing.	6	21
Marketing and Sales.	1	3
Production Control -- Records.	3	10
Purchasing and Procurement	4	14
Service (yard and labor personnel,etc.). .	1	3
Traffic and Transportation	1	3
Total	29	100

Methods of Updating

Sixty percent (N=18) of the middle managers would take a credit course and 77 percent (N=24) would take a non-credit course if they were offered locally.

No one was currently enrolled for a degree. Four managers planned to enroll and all of these planned to earn the bachelor's degree. Three said they planned to study business administration, and one was unspecified.

Sixty-eight percent had no plans for further degree work and their reasons are given below:

TABLE 24

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time.	8	38
Live too far from educational center	5	24
Job demands no more education.	2	9
Cannot afford it	1	5
Not interested	1	5
Other (not specified).	4	19
Total	21	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 25

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=31)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics .	16	52
Attendance at regional or national meetings of professional societies.	10	32
Company in-service training courses.	7	23
Managerial development within company. . . .	3	10
Short refresher courses at colleges or universities	2	6
Correspondence courses	2	6
Workshops or seminars in liberal arts or humanities	1	3

Many sources of information were used by the middle managers to keep up with new developments. Table 26 lists these sources.

TABLE 26

SOURCES OF INFORMATION USED IN UPDATING
(N=29)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	56	36	4	4	0
Subordinate-superior discussions or meetings	55	37	4	0	4
In-plant reports and bulletins	44	41	4	0	11
Business reports	24	48	14	14	0
Management journals	21	64	7	4	4
Manufacturer's literature	17	59	21	3	0
Lectures, conferences, workshops, and seminars	11	38	33	7	11
Professional society meetings	11	25	25	39	0
Technical books, reports, abstracts, and indexes	7	49	33	11	0
Scientific and technical journals	4	55	30	11	0
Company in-service courses	4	12	12	28	44
Use of consultants	0	33	22	41	4
College and university day courses	0	0	4	88	8
College and university evening courses	0	0	0	85	15

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 27)

TABLE 27

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=31)

	Number Managers	Percent Managers
Correspondence courses.	16	52
Programmed instruction.	15	48
Courses recorded on tapes	7	23
Courses recorded on records	6	19
Educational television.	5	16
Two-way telephone courses	2	6
Two-way radio courses	1	3

Company Attitudes Toward Education

Of the 25 managers responding to a question on the attitude of their immediate superior toward continuing their education, 32 percent (N=8) said the superior encouraged them and 68 percent (N=17) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 28

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=28)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	89	11	0	0
Attend company training courses	68	9	0	23
Hold office in professional societies. .	62	19	0	19
Attend seminars or workshops away from the company.	62	19	0	19
Enroll for advanced work	50	27	0	23
Write technical and professional papers. .	36	28	0	36
Educational leave of absence.	4	18	7	71

Thirty-eight percent of the middle managers indicated that they were employed by companies which provided in-service training; 59 percent were not, and three percent did not know. Thirty-one percent said the training was entirely on company time, 30 percent said it was partly on company time, 13 percent said it was not on company time, and 26 percent did not know.

Forty percent reported that their company had an educational assistance plan. Fifty-three percent said it did not and seven percent did not know. Thirty-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the nine managers who responded to this question, follows:

TABLE 29

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	6
About 3/4	0
About 2/3	0
About 1/2	1
About 1/3	0
Less than 1/3	0
Don't know	2
Total	9

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 30

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	3
251 - 300	2
201 - 250	0
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know	4
Total	9

When asked about the effect of available company educational assistance in motivating them to undertake further education, none of the middle managers said it had strongly encouraged them, 56 percent said it had partially influenced them, and 44 percent said it had no effect. There is an inconsistency here: while 56 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and only four were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Fabricated Metal Products, 46 first-line supervisors from ten companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 46 first-line supervisors in the category of Fabricated Metal Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job	70
Decision Making	60
The Tools and Techniques of Effective Supervision	58
Communications	57
Human Aspect of Management	56
Leadership	54
Safety	54
Inter-Departmental Cooperation	53
Grievance Procedure and Arbitration	52

Table 31 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 31

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=44)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . . .	31	70	42	95
Decision Making.	25	60	35	84
The Tools and Techniques of Effective Supervision.	25	58	39	91
Inter-Departmental Cooperation	23	53	38	38
Supervisor's Role in Company Economics . .	19	45	32	76
Supervisor's Role in Employee Discipline .	19	45	32	76
Employee Training and Evaluation				
Safety	22	54	35	86
Evaluation of Employee Performance	20	48	36	86
Employee Training.	17	40	32	76
The Supervisor and the Union				
Grievance Procedure and Arbitration. . . .	22	52	35	83
Labor Relations.	16	38	36	86
Labor Relations Legislation.	4	10	27	65
Developing Those we Supervise				
Communications	24	57	34	81
Human Aspect of Management	24	56	40	93
Leadership	22	54	38	93
Developing the Work Team	17	40	33	77

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Twenty-six percent (N=12) of the first-line supervisors were 40 years of age or younger. Sixty-five percent (N=30) were high school graduates, two percent (N=1) had the bachelor's degree, and two percent (N=1) had the master's degree; no one had the doctorate. Twenty-two percent (N=10) had gone to trade school.

One person had earned the bachelor's degree in engineering and one had earned the master's in agriculture.

Below is a listing of the major areas of work for the first-line supervisors in Fabricated Metal Products:

TABLE 32

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	2	5
Engineering	3	7
Industrial Relations.	2	5
Maintenance	3	7
Manufacturing	22	51
Marketing and Sales	1	2
Production Control — Records	2	5
Research and Development.	1	2
Service (yard and labor personnel,etc.)	3	7
Traffic and Transportation.	3	7
Other (not specified)	1	2
Total.	43	100

Methods of Updating

Forty-five percent (N=20) of the first-line supervisors would take a credit course and 68 percent (N=30) would take a non-credit course if they were offered locally.

One of the supervisors was currently enrolled for the associate degree and one was planning to enroll for the bachelor's degree in engineering.

For the 74 percent of the supervisors (N=34) who did not have plans for further formal education, the following reasons were indicated:

TABLE 33

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Not a high school graduate.	9	25
Don't have the time	7	21
Cannot afford it.	4	12
Live too far from educational center. .	4	12
Not interested.	3	9
Job demands no more education	2	6
Can do better on my own	1	3
Other (not specified)	4	12
Total.	34	100

First-line supervisors had used a variety of educational methods for updating within the past four years. (Table 34)

TABLE 34

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=46)

	Number Supervisors	Percent Supervisors
Workshops or seminars on managerial topics.	16	35
Company in-service training courses. .	14	30
Managerial development within company.	11	24
Attendance at regional or national meetings of professional societies .	6	13
Correspondence courses	6	13
Short refresher courses at colleges or universities.	3	7
Workshops or seminars in liberal arts or humanities	3	7
High school courses to improve job performance.	1	2
Television courses	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 35

SOURCES OF INFORMATION USED IN UPDATING
(N=41)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	50	41	5	2	2
Subordinate-superior discussions or meetings	44	39	15	0	2
In-plant reports and bulletins	42	35	8	5	10
Manufacturer's literature	35	39	13	5	8
Management journals	21	42	21	11	5
Technical books, reports, abstracts, and indexes	21	26	27	21	5
Scientific and technical journals	18	30	21	26	5
Use of consultants	11	14	24	37	14
Lectures, conferences, workshops, and seminars	8	31	28	18	15
Professional society meetings	6	19	25	44	6
Business reports	5	28	18	49	0
Company in-service courses	3	25	8	28	36
College and university evening courses	3	11	8	59	19
College and university day courses	0	0	6	88	6

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 36)

TABLE 36

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=46)

	Number Supervisors	Percent Supervisors
Programmed instruction	20	43
Correspondence courses.	19	41
Educational television.	17	37
Courses recorded on records	8	17
Courses recorded on tapes	6	13
Two-way telephone courses	4	9
Two-way radio courses	2	4
Other (not specified)	3	7

Company Attitudes Toward Education

A total of 42 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Thirty-eight percent (N=16) said the superior encouraged them; 60 percent (N=25) said he was noncommittal, and two percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 37

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=46)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	66	9	0	25
Attend professional meetings	58	13	0	29
Attend seminars or workshops away from the company.	47	13	6	34
Hold office in professional socieites. .	43	14	0	43
Enroll for advanced work	41	14	6	39
Write technical and professional papers. .	21	25	0	54
Educational leave of absence.	5	14	5	76

Forty-two percent of the supervisors were employed by companies which provided in-service training; 47 percent said their company did not provide it and 11 percent did not know. Nine percent said the training was completely on company time, 31 percent said it was partly on company time, 30 percent said it was entirely on the men's own time, and 30 percent did not know.

Thirty-eight percent reported that their company had an educational assistance plan; 42 percent said it did not, and 20 percent did not know. Forty-one percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 17 supervisors who answered this question, is shown in the table below:

TABLE 38

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	6
About 3/4	1
About 2/3	0
About 1/2	3
About 1/3	0
Less than 1/3	0
Don't know	7
Total	17

The 16 supervisors who answered the question reported that they did not know the maximum amount of tuition paid by the company per year.

When asked what the effect of available financial assistance was on their motivation to undertake further education, 41 percent of the supervisors said it strongly encouraged them, 53 percent said it partially influenced them, and six percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 94 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only one of the 46 respondents was actually enrolled and one was planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN FABRICATED METAL PRODUCTS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Fabricated Metal Products as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied a good deal.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Fabricated Metal Products N=13	Total Report N=705
Working Effectively with Individuals and Groups. . .	69	*
Management Development	58	53
Communication in the Organization.	54	59
Effective Utilization of Manpower Resources and Allocation	54	*
Human Aspect of Management	54	*
Operations Planning and Control.	50	*
Policy Formation.	50	*
Effective Speaking	*	50
Effective Written Communications	*	50
Long-range Planning and Forecasting for Corporate Growth	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Fabricated Metal Products N=13	Total Report N=705
Effective Written Communications	75	74
Effective Speaking	50	67
Working Effectively with Individuals and Groups. .	*	66
Communication in the Organization.	*	65
Effective Reading Skills	*	62
Listening Skills	*	62
Performance Appraisal and Counseling Techniques. .	*	57
Management Development	*	56
Human Aspect of Management	*	54
Improving Decision Making of Managers.	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Fabricated Metal Products and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Fabricated Metal Products N=31	Total Report N=1,202
Effective Communication in the Organization. . . .	75	64
Management Development	71	66
Working Efficiently with Individuals	69	65
Supervisory Training and Employee Development. . .	62	53
Performance Appraisal and Counseling Techniques. .	52	*
Listening Skills	50	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Fabricated Metal Products N=31	Total Report N=1,202
Supervisory Training and Employee Development. . .	55	61
Working Efficiently with Individuals	52	62
Effective Communication in the Organization. . . .	*	56
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they needed the following of a listing of 16 subjects:

	"Should Have" Percent	
	Fabricated Metal Products N=46	Total Report N=1,713
Fundamentals of the Supervisor's Job	70	64
Decision Making.	60	54
The Tools and Techniques of Effective Supervision.	58	55
Communications	57	61
Human Aspect of Management	56	53
Leadership	54	57
Safety	54	*
Inter-Departmental Cooperation	53	*
Grievance Procedure and Arbitration.	52	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FOOD AND KINDRED PRODUCTS INDUSTRY IN PENNSYLVANIA

M-69

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FOOD AND KINDRED PRODUCTS INDUSTRY IN PENNSYLVANIA

M-69

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

  Top Management. 2
  Middle Management 2
  First-Line Supervision. 3

TOP MANAGEMENT 3

  Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 8

  Educational Needs Within Areas of Managerial Responsibility 8
  Background Information of Middle Managers 16

    Personal, Educational, and Professional Background. 16
    Methods of Updating 17
    Company Attitudes Toward Education. 19

FIRST-LINE SUPERVISION 21

  Educational Needs 21
  Background Information of First-Line Supervisors. 22

    Personal, Educational, and Professional Background. 22
    Methods of Updating 23
    Company Attitudes Toward Education. 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE FOOD AND KINDRED PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 28

  Top Management. 28
  Middle Management 29
  First-Line Supervision. 30

RECOMMENDATIONS. 31

  For the University. 31
  For Business and Industry 31
  For the Individual Manager and Supervisor 32
  For Professional Associations 32

LIST OF TABLES

PAGE

1. Top Management — General Management. 4
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 5
4. Top Management — Economics 5
5. Top Management — Quantitative Methods Applied to Business and Industry. 6
6. Top Management — Industrial Relations and Personnel Management . 6
7. Top Management — Financial Management. 6
8. Top Management — Manufacturing and Production. 7
9. Top Management — Marketing 7
10. Top Management — International Management. 7
11. Middle Management — General Management 9
12. Middle Management — Behavioral Science and Management. 9
13. Middle Management — Communication. 10
14. Middle Management — Economics. 10
15. Middle Management — Quantitative Methods Applied to Business and Industry. 11
16. Middle Management — Computer Operations and Data Processing. . . 11
17. Middle Management — Industrial Relations and Personnel Management. 12
18. Middle Management — Financial Management 13
19. Middle Management — Manufacturing and Production 13
20. Middle Management — Marketing. 14
21. Middle Management — Sales Management 14
22. Middle Management — International Management 15

PAGE

23. Middle Management — Research and Development 15

24. Middle Management — Major Fields of Study of College Graduates . 16

25. Middle Management — Major Areas of Work. 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 17

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 17

28. Middle Management — Sources of Information Used in Updating. . . 18

29. Middle Management — Preference for Media of Course Presentation. 19

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management — Proportion of Tuition Paid 20

32. Middle Management — Maximum Amount of Tuition Paid Per Year. . . 20

33. First-Line Supervision Training Needs 22

34. First-Line Supervision — Major Fields of Study of College Graduates 23

35. First-Line Supervision — Major Areas of Work 23

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 24

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 24

38. First-Line Supervision — Sources of Information Used in Updating 25

39. First-Line Supervision — Preference for Media of Course Presentation. 26

40 Supervisors' Perception of Company Policy Toward Professional Development 26

41. First-Line Supervision — Proportion of Tuition Paid. 27

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FOOD AND KINDRED PRODUCTS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 274 managers and supervisors from 20 companies in the Food and Kindred Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, five were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 11 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for four courses, in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need four of the listed courses. (Page 8)

The educational level was fairly high, with 37 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-20)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 12 out of 16 courses. (Page 21)

Eleven percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the industrial category of Food and Kindred Products, 59 top managers from 20 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	62
Human Aspect of Management	55
Managerial Motivation	55
Long-range Planning and Forecasting for Corporate Growth	54
Effective Written Communications	53

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Working Effectively with Individuals and Groups	72
Effective Speaking.	67
Effective Reading Skills.	65
Effective Written Communications.	63
Communication in the Organization	62
Listening Skills.	62
Performance Appraisal and Counseling Techniques	56
Improving Decision Making of Managers	54
Management Development.	53
Human Aspect of Management.	50
Management Reporting Systems.	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=59)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Long-range Planning and Forecasting for Corporate Growth .	54	74	27
Management Reporting Systems . .	48	83	50
Overall Strategy and Goals . . .	48	71	32
Improving Decision Making of Managers	46	85	54
Industrial Organization and Administration	44	86	35
Policy Formation	42	89	22
Effective Utilization of Manpower Resources and Allocation	42	71	36
Impact of Computer Technology. .	38	68	32
Ethical Considerations in Business	31	64	29
Managing Major Change in Organizations.	29	58	27
Impact of Government Legislation and Controls on Business . . .	20	65	20
Management of Research and Development.	20	50	19
Impact of Science and Technology on Business Management	17	76	28
Impact of Multinational Aspects of Planning and Control. . . .	2	10	8

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=58)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	62	81	62
Managerial Motivation	55	91	43
Human Aspect of Management	55	89	50
Working Effectively with Individuals and Groups	48	88	72
Creativity and Innovation	38	77	48
Political, Social, and Cultural Trends and Their Impact on Business Management	7	40	15

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=58)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	53	72	63
Effective Reading Skills	47	75	65
Effective Speaking	43	76	67
Listening Skills	43	72	62

TABLE 4

ECONOMICS
(N=55)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	15	51	11
Comparative Economic Systems	7	35	9

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=52)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods	18	69	16
Statistical Decision Theory	17	52	21

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=59)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	49	90	53
Performance Appraisal and Counseling Techniques	49	83	56
Incentives	41	84	38
Personnel Policy Affecting Labor-Management Relations	30	70	33
Criteria and Selection of Personnel	27	66	45
Personnel Policy Affecting Employment Practices	25	65	32
Personnel Policy Affecting Wage and Salary Structure	23	55	20

TABLE 7

FINANCIAL MANAGEMENT
(N=56)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	37	68	43
Managerial Accounting and Budgeting	34	60	38
Capital Budgeting	32	62	23
Financial Planning and Forecasting	31	55	20

TABLE 8

MANUFACTURING AND PRODUCTION
(N=56)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	39	66	39
Operations Planning and Control.	20	65	27
Operations Research Applied to Production	19	55	25

TABLE 9

MARKETING
(N=56)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Pricing.	38	71	36
Product Planning	35	64	33
Marketing Research	32	62	38
Logistics Planning	24	55	20

TABLE 10

INTERNATIONAL MANAGEMENT
(N=53)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	4	25	9
International Economic Analysis.	2	12	6

MIDDLE MANAGEMENT

In the industrial category of Food and Kindred Products, 86 middle managers from 20 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	68
Working Efficiently with Individuals	67
Effective Communication in the Organization	65
Supervisory Training and Employee Development	59

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Working Efficiently with Individuals	60
Effective Communication in the Organization	58
Supervisory Training and Employee Development	56
Management Development	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Food and Kindred Products industrial category.

TABLE 11

GENERAL MANAGEMENT
(N=83)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	68	92	50
Working Efficiently with Individuals.	67	94	60
Supervisory Training and Employee Development	59	85	56
Performance Appraisal and Counseling Techniques.	44	83	44
Criteria and Selection of Personnel for Promotion. . . .	42	79	30
Analyzing Organizational Behavior	40	73	25
Long-range Planning and Forecasting for Corporate Growth .	27	63	11
Effective Utilization of Manpower Resources and Allocation	27	55	25
Impact of Science and Technology on Business Management	24	59	21
The Application of Information Technology on Decision Making.	18	46	9
Impact of Computer Technology. .	16	40	9
Principles and Analysis of Office Systems	15	53	14
Impact of Government Legislation and Controls on Business . . .	14	51	16

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=78)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . . .	47	86	43
Human Aspect of Management . . .	42	78	42
Management Psychology.	36	83	31
Understanding Group Interaction and Behavior	36	79	44
Industrial Sociology	19	58	18
Social and Cultural Trends and Their Impact on Business Management	19	47	14
Impact of Consumer Behavior on Management	14	49	16

TABLE 13

COMMUNICATION
(N=80)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	65	88	58
Effective Reading Skills	45	78	38
Effective Report Writing	44	70	39
Oral Presentation of Reports . .	41	78	46
Listening Skills	39	81	47
Business Letter Writing.	35	73	35

TABLE 14

ECONOMICS
(N=80)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	34	71	23
Fundamentals of Economics. . . .	27	56	19
The Price Mechanism.	26	65	15
Economic Trends.	21	56	9
The Economic Systems of the United States.	18	53	8
Economics of Technology and Innovation	14	40	6
Comparative Economic Systems . .	9	33	12
International Economics.	5	18	4

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=77)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	35	75	23
Inventory Management	29	60	19
Review of Basic Mathematics. . .	26	47	32
Statistical Decision Theory. . .	25	62	11
Replacement Management	22	54	10
Applying Program Evaluation and Review Techniques (PERT) . . .	19	53	12
Statistical Procedures and Methods.	17	45	16
Dynamic Programming.	12	29	8
Linear Programming	11	39	11
Probability Theory	9	29	9
Waiting Lines.	4	21	3
Analytic Geometry.	4	15	8
Matrix Algebra	4	13	3
Calculus of Finite Differences .	0	13	3
Calculus of Infinite Series. . .	0	12	3

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. . .	17	32	11
Applying the Computer to Problems of Business and Management	14	36	10
Fundamentals of Programming for Computer Operations.	7	24	7
Mathematics for Digital Computers	4	14	6

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=39)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management and Labor Relations .	59	80	26
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	49	77	31
Maintaining Efficient and Up-to-Date Personnel Records	45	87	26
In-plant Training.	45	81	42
Job Analysis and Job Evaluation Methods.	45	80	29
Employee Benefit Plans	35	64	16
Salary and Wage Administration .	30	66	9
Industrial Safety and Medical Services	29	61	32

TABLE 18

FINANCIAL MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	48	70	22
Managerial Accounting.	26	59	15
Fundamentals of Financial Reporting and Statement Analysis	22	59	11
New Developments in Equipment Replacement Policy	21	50	11
Taxes.	14	43	7
Financial Planning and Forecasting.	11	33	4

TABLE 19

MANUFACTURING AND PRODUCTION
(N=48)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Value Analysis	47	76	31
Production Planning and Control Management	44	77	25
Methods Analysis and Work Simplification	44	71	33
Quality Control.	44	60	27
Maintenance Planning and Control	43	63	43
Automation	41	71	20
Materials Handling	40	64	38
Inventory Management	36	76	27
Organization and Management of Purchasing Operations.	26	54	12
Engineering Economy.	18	52	16

TABLE 20

MARKETING
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Pricing.	59	69	14
Product Planning	57	84	23
Marketing Management	55	69	10
Marketing Research	54	72	7
Fundamentals of Marketing. . . .	53	80	17
Physical Distribution Methods. .	52	73	14
Packaging Design and Development	50	63	7
Brand Marketing.	46	71	14
Application of Management Science and Computers to Marketing Problems	28	49	0

TABLE 21

SALES MANAGEMENT
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	56	81	38
Training of Field Salesmen . . .	48	71	42
Supervision of Field Salesmen. .	47	66	34
Compensation of Field Salesmen .	45	63	18
Selection and Evaluation of Field Salesmen	43	69	20

TABLE 22

INTERNATIONAL MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Monetary Exchange Problems . . .	13	13	6
International Understanding. . .	12	24	6
International Law.	12	18	6
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	12	18	6
United States Foreign Economic Policy	12	18	0
Commercial Policy and Trade Control.	12	12	0
International Economic Analysis.	12	12	0
Appraising and Developing Foreign Markets.	12	12	0
Sources of Funds: Financing of Day-to-Day Transactions. . . .	11	17	0
International Economic Organizations.	11	11	0

TABLE 23

RESEARCH AND DEVELOPMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning Budgeting and Control of Projects.	26	42	5
Guidelines for Selecting and Appraising New Projects. . . .	21	42	5
Evaluation of the Research and Development Programs	21	37	5
Supervision and Management of Research Services.	21	37	0
Building Research and Development Teams	16	37	5

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=35) of the 86 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Eighty-seven percent (N=74) had completed high school, 37 percent (N=32) had the bachelor's degree, and five percent (N=4) had the master's degree. No one had the doctorate. Seventeen percent (N=15) went to business school and seven percent (N=6) went to trade school The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture	6	0
Business Administration	13	1
Engineering	4	0
Law	0	1
Liberal Arts	5	0
Psychology	3	0
Other (not specified)	1	2
Total	32	4

The major areas of work for the middle managers in the Food and Kindred Products industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	19	24
Engineering	5	6
Finance	2	2
Industrial Relations	2	2
Maintenance	2	2
Manufacturing	11	14
Marketing and Sales	22	28
Production Control - Records	5	6
Purchasing and Procurement	6	7
Research and Development	1	1
Traffic and Transportation	6	7
Other (not specified)	1	1
Total	82	100

Methods of Updating

Fifty-seven percent (N=47) of the middle managers would take a credit course and 68 percent (N=58) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the master's degree. Of those who indicated that they planned to enroll for a degree, one was planning to enroll for an associate degree, one for the bachelor's, and four for the master's. The major fields of study were: four in business administration, one in education, one in psychology, and one in another field which was not specified.

Seventy-eight percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	24	37
Not a high school graduate.	10	15
Job demands no more education	8	12
Cannot afford it.	6	9
Not interested.	5	7
Live too far from educational center.	4	6
Can do better on my own	3	4
Other (not specified)	7	10
Total.	67	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=86)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics. .	37	43
Company in-service training courses	27	31
Managerial development within company	26	30
Attendance at regional or national meetings of professional societies	23	27
Correspondence courses.	14	16
Short refresher courses at colleges or universities.	10	12
Workshops or seminars in liberal arts or humanities.	3	3
High school courses	2	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=83)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	66	30	2	0	2
In-plant reports and bulletins . . .	61	24	3	3	9
Subordinate-superior discussions or meetings.	51	42	1	0	6
Manufacturer's literature.	36	35	13	13	3
Management journals.	29	47	13	5	6
Business reports	27	47	17	8	1
Scientific and technical journals. .	24	36	19	20	1
Professional society meetings. . . .	19	21	15	37	8
Technical books, reports, abstracts and indexes.	17	34	21	25	3
Lectures, conferences, workshops, and seminars	13	28	34	9	16
Company in-service courses	12	22	8	22	36
Use of consultants	8	19	24	40	9
College and university evening courses.	7	5	9	66	13
College and university day courses .	0	0	5	87	8

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=86)

	Number Managers	Percent Managers
Programmed instruction.	43	50
Correspondence courses.	35	41
Educational television.	22	26
Courses recorded on records	12	14
Courses recorded on tapes	11	13
Two-way telephone courses	9	10
Two-way radio courses	7	8

Company Attitudes Toward Education

Of the 85 managers responding to a question on the attitude of their immediate superior toward continuing their education, 46 percent (N=39) said the superior encouraged them and 53 percent (N=45) said the superior was noncommittal. One percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=80)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	80	9	0	11
Attend professional meetings	70	26	0	4
Hold office in professional societies.	57	26	1	16
Enroll for advanced work .	54	24	1	21
Attend seminars or workshops away from the company.	50	21	7	22
Write technical and professional papers	30	27	0	43
Educational leave of absence.	9	13	11	67

Forty-nine percent of the middle managers indicated that they were employed by companies which provided in-service training; 44 percent were not, and seven percent did not know. Forty-four percent said the training was entirely on company time, 36 percent said it was partly on company time, seven percent said it was not on company time, and 13 percent did not know.

Fifty-three percent reported that their company had an educational assistance plan. Thirty-eight percent said it did not and nine percent did not know. Forty-six percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 41 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	16
About 3/4	6
About 2/3	0
About 1/2	12
About 1/3	0
Less than 1/3	0
Don't know	7
Total	41

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	5
251 - 300	1
201 - 250	0
151 - 200	1
101 - 150	1
51 - 100	2
50 or less	0
Don't know	29
Total	39

When asked about the effect of available company educational assistance in motivating them to undertake further education, 27 percent of the middle managers said it had strongly encouraged them, 34 percent said it had partially influenced them, and 39 percent said it had no effect. There is an inconsistency here: while 61 percent said the availability of financial aid motivated them to some extent, only one person was actually enrolled and six were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Food and Kindred Products, 129 first-line supervisors from 20 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 129 first-line supervisors in the category of Food and Kindred Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job	66
Leadership	64
Communications	59
Human Aspect of Management	59
Inter-Departmental Cooperation	55
The Tools and Techniques of Effective Supervision	55
Decision Making	54
Supervisor's Role in Company Economics	53
Supervisor's Role in Employee Discipline	52
Developing the Work Team	51
Employee Training	50
Evaluation of Employee Performance	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=125)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . . .	82	66	113	91
The Tools and Techniques of Effective Supervision.	68	55	114	92
Inter-Departmental Cooperation	66	55	110	91
Decision Making.	65	54	110	91
Supervisor's Role in Company Economics . .	64	53	106	88
Supervisor's Role in Employee Discipline .	63	52	104	83
Employee Training and Evaluation				
Employee Training.	61	50	102	84
Evaluation of Employee Performance	60	50	101	84
Safety	60	49	103	84
The Supervisor and the Union				
Grievance Procedure and Arbitration. . . .	57	48	95	80
Labor Relations.	46	39	85	72
Labor Relations Legislation.	24	20	75	63
Developing Those We Supervise				
Leadership	78	64	110	90
Human Aspect of Management	73	59	114	92
Communications	71	59	105	87
Developing the Work Team	60	51	97	83

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty-nine percent (N=62) of the first-line supervisors were 40 years of age or younger. Sixty percent (N=77) were high school graduates, 11 percent (N=14) had the bachelor's degree, and no one had the master's degree or the doctorate. Nine percent (N=11) had gone to business school and 13 percent (N=17) to trade school. The major fields of degree study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's
Agriculture	2
Business Administration	10
Education	1
Other (not specified)	1
Total	14

Below is a listing of the major areas of work for the first-line supervisors in the Food and Kindred Products industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	11	9
Engineering	3	2
Finance	3	2
Industrial Relations	3	2
Maintenance	10	8
Manufacturing	38	31
Marketing and Sales	21	17
Production Control - Records	17	14
Purchasing and Procurement	2	2
Service (yard and labor personnel, etc.)	9	7
Traffic and Transportation	6	5
Other (not specified)	1	1
Total	124	100

Methods of Updating

Forty-seven percent (N=57) of the first-line supervisors would take a credit course and 76 percent (N=97) would take a non-credit course if they were offered locally.

Three of the supervisors were currently enrolled for the bachelor's degree. Five were planning to enroll, three for the associate degree and two for the master's. The curriculum for those enrolled or planning to enroll was: four in business administration, two in liberal arts, one in agriculture, and one in another field which was not specified.

For the 111 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	33	29
Not a high school graduate.	25	23
Cannot afford it.	21	19
Job demands no more education	12	11
Not interested.	6	5
Live too far from educational center. .	4	4
Can do better on my own	3	3
Other (not specified)	7	6
Total.	111	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=129)

	Number Supervisors	Percent Supervisors
Company in-service training courses . .	54	42
Managerial development within company .	48	37
Workshops or seminars on managerial topics.	22	17
Correspondence courses.	20	16
Attendance at regional or national meetings of professional societies. .	16	12
Short refresher courses at colleges or universities	10	8
Workshops or seminars in liberal arts or humanities.	4	3
High school courses to improve job performance	4	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=113)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins . . .	64	18	4	4	10
Discussion with company personnel (informal or formal)	55	37	2	1	5
Subordinate-superior discussions or meetings.	44	38	8	6	4
Manufacturer's literature.	26	22	22	20	10
Management journals.	22	38	13	14	13
Business reports	18	35	17	26	4
Company in-service courses	17	27	6	12	38
Lectures, conferences, workshops, and seminars	16	26	21	18	19
Scientific and technical journals. .	14	18	16	42	10
Use of consultants	12	20	18	40	10
Technical books, reports, abstracts, and indexes.	11	28	19	34	8
Professional society meetings. . . .	8	15	22	50	5
College and university day courses .	1	2	5	84	8
College and university evening courses.	0	9	6	75	10

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=129)

	Number Supervisors	Percent Supervisors
Correspondence courses.	82	64
Programmed instruction.	60	47
Educational television.	28	22
Courses recorded on records	21	16
Courses recorded on tapes	19	15
Two-way telephone courses	15	12
Two-way radio courses	6	5
Other (not specified)	3	2

Company Attitudes Toward Education

A total of 121 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty-two percent (N=63) said the superior encouraged them; 48 percent (N=58) said he was noncommittal; and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=115)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	83	3	1	13
Attend professional meetings	62	12	1	25
Enroll for advanced work .	57	12	0	31
Attend seminars or workshops away from the company.	50	13	1	36
Hold office in professional societies .	45	19	0	36
Write technical and professional papers. . .	24	17	0	59
Educational leave of absence.	14	9	3	76

Fifty-two percent of the supervisors indicated that they were employed by companies which provided in-service training; 43 percent said their company did not provide it and five percent did not know. Forty-two percent said the training was completely on company time, 27 percent said it was partly on company time, 18 percent said it was entirely on the men's own time, and 13 percent did not know.

Forty-seven percent reported that their company had an educational assistance plan; 43 percent said it did not, and ten percent did not know. Fifty percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 54 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	24
About 3/4	5
About 2/3	0
About 1/2	14
About 1/3	1
Less than 1/3	0
Don't know	10
Total	54

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	4
251 - 300	1
201 - 250	1
151 - 200	1
101 - 150	1
51 - 100	1
50 or less	0
Don't know	42
Total	51

When asked what the effect of available financial assistance was on their motivation to undertake further education, 38 percent of the supervisors said it strongly encouraged them, 32 percent said it partially influenced them, and 30 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 70 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only three of the 129 respondents were actually enrolled and five were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE FOOD AND KINDRED PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Food and Kindred Products were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." The results were quite similar.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Food and Kindred Products N=59	Total Report N=705
Communication in the Organization	62	59
Human Aspect of Management	55	*
Managerial Motivation	55	*
Long-range Planning and Forecasting for Corporate Growth	54	50
Effective Written Communications	53	50
Management Development	*	53
Effective Speaking	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Food and Kindred Products N=59	Total Report N=705
Working Effectively with Individuals and Groups. . . .	72	66
Effective Speaking	67	67
Effective Reading Skills	65	62
Effective Written Communications	63	74
Communication in the Organization.	62	65
Listening Skills	62	62
Performance Appraisal and Counseling Techniques. . . .	56	57
Improving Decision Making of Managers.	54	54
Management Development	53	56
Human Aspect of Management	50	54
Management Reporting Systems	50	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Food and Kindred Products and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Food and Kindred Products N=86	Total Report N=1,202
Management Development	68	66
Working Efficiently with Individuals	67	65
Effective Communication in the Organization.	65	64
Supervisory Training and Employee Development.	59	53

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Food and Kindred Products N=86	Total Report N=1,202
Working Efficiently with Individuals	60	62
Effective Communication in the Organization.	58	56
Supervisory Training and Employee Development.	56	61
Management Development	50	*
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Food and Kindred Products N=129	Total Report N=1,713
Fundamentals of the Supervisor's Job	66	64
Leadership	64	57
Communications	59	51
Human Aspect of Management	59	53
The Tools and Techniques of Effective Supervision. . .	55	55
Inter-Departmental Cooperation	55	*
Decision Making.	54	54
Supervisor's Role in Company Economics	53	*
Supervisor's Role in Employee Discipline	52	*
Developing the Work Team	51	*
Employee Training.	50	*
Evaluation of Employee Performance	50	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an intregal part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent methods of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN INSURANCE COMPANIES IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN
INSURANCE COMPANIES
IN PENNSYLVANIA

M-70

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

Top Management. 2
Middle Management 2
First-Line Supervision. 3

TOP MANAGEMENT 3

Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 8

Educational Needs Within Areas of Managerial Responsibility 8
Background Information of Middle Managers 16

Personal, Educational, and Professional Background 16
Methods of Updating. 17
Company Attitudes Toward Education 19

FIRST-LINE SUPERVISION 21

Educational Needs 21
Background Information of First-Line Supervisors. 22

Personal, Educational, and Professional Background 22
Methods of Updating. 24
Company Attitudes Toward Education 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN INSURANCE COMPANIES WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 28

Top Management. 28
Middle Management 29
First-Line Supervision. 30

RECOMMENDATIONS. 31

For the University. 31
For Business and Industry 31
For the Individual Manager and Supervisor 32
For Professional Associations 32

LIST OF TABLES

PAGE

1. Top Management — General Management. 4
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 5
4. Top Management — Economics 5
5. Top Management — Quantitative Methods Applied to Business and Industry. 6
6. Top Management — Industrial Relations and Personnel Management . 6
7. Top Management — Financial Management. 6
8. Top Management — Manufacturing and Production. 7
9. Top Management — Marketing 7
10. Top Management — International Management. 7
11. Middle Management — General Management 9
12. Middle Management — Behavioral Science and Management. 9
13. Middle Management — Communication. 10
14. Middle Management — Economics. 10
15. Middle Management — Quantitative Methods Applied to Business and Industry. 11
16. Middle Management — Computer Operations and Data Processing. . . 11
17. Middle Management — Industrial Relations and Personnel Management. 12
18. Middle Management — Financial Management 13
19. Middle Management — Manufacturing and Production 13
20. Middle Management — Marketing. 14
21. Middle Management — Sales Management 14
22. Middle Management — International Management 15
23. Middle Management — Research and Development 15
24. Middle Management — Major Fields of Study of College Graduates . 16

PAGE

25. Middle Management — Major Areas of Work. 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 17

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 17

28. Middle Management — Sources of Information Used in Updating. . . 18

29. Middle Management — Preference for Media of Course Presentation. 19

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management — Proportion of Tuition Paid 20

32. Middle Management — Maximum Amount of Tuition Paid Per Year. . . 20

33. First-Line Supervision Training Needs 22

34. First-Line Supervision — Major Fields of Study of College Graduates 23

35. First-Line Supervision — Major Areas of Work 23

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 24

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 24

38. First-Line Supervision — Sources of Information Used in Updating. 25

39. First-Line Supervision — Preference for Media of Course Presentation. 26

40. Supervisors' Perception of Company Policy Toward Professional Development 26

41. First-Line Supervision — Proportion of Tuition Paid. 27

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year. 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN INSURANCE COMPANIES IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific sgement of a larger study,* and is based on responses from 128 managers and supervisors from eight Insurance companies in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

None of the 48 courses listed was checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said six courses were needed. (Page 3)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for five courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need nine of the listed courses. (Page 8)

The educational level was high, with 48 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Page 16-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for four out of 16 courses. (Page 21)

Fifty-four percent of the supervisors had the bachelor's degree, showing a high level of education. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the category of Insurance, 30 top managers from eight companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

No course reached a "Should Have" need of 50 percent or more for the top managers. Effective Speaking was seen as needed by 43 percent and Communication in the Organization by 41 percent.

Fifty percent or more of the top managers indicated that those they supervise need the following courses:

	"Subordinates' Needs" Percent
Effective Speaking.	73
Effective Written Communications.	70
Working Effectively with Individuals and Groups	63
Effective Reading Skills.	60
Listening Skills.	55
Performance Appraisal and Counseling Techniques	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Policy Formation	37	80	33
Improving Decision Making of Managers	34	72	45
Long-range Planning and Forecasting for Corporate Growth .	31	83	21
Overall Strategy and Goals . . .	30	87	27
Effective Utilization of Manpower Resources and Allocation	30	73	27
Management Reporting Systems . .	23	63	27
Industrial Organization and Administration	23	53	33
Managing Major Change in Organizations.	21	55	14
Impact of Computer Technology. .	17	47	20
Ethical Considerations in Business	13	46	13
Impact of Government Legislation and Controls on Business . . .	13	33	20
Impact of Science and Technology on Business Management	7	40	10
Management of Research and Development.	4	36	7
Impact of Multinational Aspects of Planning and Control. . . .	3	6	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	41	89	48
Working Effectively with Individuals and Groups	33	76	63
Managerial Motivation	30	90	43
Human Aspect of Management	30	80	47
Creativity and Innovation	7	43	14
Political, Social, and Cultural Trends and Their Impact on Business Management	3	44	14

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	43	76	73
Listening Skills	38	86	55
Effective Reading Skills	37	87	60
Effective Written Communications	37	77	70

TABLE 4

ECONOMICS
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	3	48	10
Comparative Economic Systems	0	21	7

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=29)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	7	45	21
Survey Course on Quantitative Methods.	7	41	17

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	37	77	37
Performance Appraisal and Counseling Techniques.	36	79	50
Incentives	31	65	24
Personnel Policy Affecting Wage and Salary Structure	21	50	18
Criteria and Selection of Personnel.	21	49	28
Personnel Policy Affecting Employment Practices	14	28	11
Personnel Policy Affecting Labor-Management Relations . .	11	26	11

TABLE 7

FINANCIAL MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting and Budgeting.	26	59	19
Fundamentals of Financial Reporting and Statement Analysis	25	64	21
Financial Planning and Forecasting.	18	39	14
Capital Budgeting.	11	25	4

TABLE 8

MANUFACTURING AND PRODUCTION
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Operations Planning and Control.	4	24	4
Planning and Utilization of Physical Facilities.	4	21	8
Operations Research Applied to Production	0	17	4

TABLE 9

MARKETING
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	12	47	8
Pricing.	8	21	4
Product Planning	4	36	8
Logistics Planning	4	12	4

TABLE 10

INTERNATIONAL MANAGEMENT
(N=27)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	4	34	4
International Economic Analysis.	4	16	0

MIDDLE MANAGEMENT

In the category of Insurance, 52 middle managers from eight companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	67
Working Efficiently with Individuals	65
Supervisory Training and Employee Development	59
Effective Communication in the Organization	58
Performance Appraisal and Counseling Techniques	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Working Efficiently with Individuals	79
Supervisory Training and Employee Development	71
Business Letter Writing	65
Effective Communication in the Organization	60
Management Development	58
Listening Skills	58
Oral Presentation of Reports	54
Performance Appraisal and Counseling Techniques	52
Effective Reading Skills	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Insurance category.

TABLE 11
GENERAL MANAGEMENT
(N=52)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	67	84	58
Working Efficiently with Individuals.	65	92	79
Supervisory Training and Employee Development	59	79	71
Performance Appraisal and Counseling Techniques.	50	77	52
Criteria and Selection of Personnel for Promotion. . . .	44	79	44
Analyzing Organizational Behavior	30	74	32
Principles and Analysis of Office Systems	27	70	35
Long-range Planning and Forecasting for Corporate Growth .	24	55	20
Effective Utilization of Manpower Resources and Allocation	18	49	25
Impact of Government Legislation and Controls on Business . . .	14	59	18
Impact of Computer Technology. .	14	51	18
The Application of Information Technology on Decision Making.	12	36	14
Impact of Science and Technology on Business Management	8	45	16

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=50)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Psychology.	33	73	35
Human Aspect of Management . . .	24	72	34
Creativity and Innovation. . . .	22	51	20
Understanding Group Interaction and Behavior	20	71	35
Industrial Sociology	12	32	8
Social and Cultural Trends and Their Impact on Business Management	8	39	14
Impact of Consumer Behavior on Management	8	26	8

TABLE 13

COMMUNICATION
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	58	91	60
Listening Skills	38	76	58
Effective Reading Skills	33	77	50
Oral Presentation of Reports . .	33	73	54
Effective Report Writing	31	73	48
Business Letter Writing.	29	74	65
Conference Leadership.	26	60	19

TABLE 14

ECONOMICS
(N=50)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Economics. . . .	12	39	18
Economics of Production and Cost	12	22	10
The Price Mechanism.	10	22	2
Economic Trends.	6	38	10
The Economic Systems of the United States.	4	31	6
International Economics.	4	16	2
Comparative Economic Systems . .	2	18	2
Economics of Technology and Innovation	2	18	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	29	62	18
Review of Basic Mathematics. . .	15	30	25
Replacement Management	3	18	8
Statistical Decision Theory. . .	6	39	4
Applying Program Evaluation and Review Techniques (PERT) . . .	6	25	2
Inventory Management	4	12	13
Linear Programming	4	6	2
Statistical Procedures and Methods.	2	20	2
Probability Theory	2	14	2
Dynamic Programming.	2	10	0
Analytic Geometry.	2	2	2
Waiting Lines.	0	8	0
Matrix Algebra	0	4	2
Calculus of Infinite Series. . .	0	4	0
Calculus of Finite Differences .	0	2	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=50)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. . .	12	60	14
Applying the Computer to Problems of Business and Management	8	55	10
Fundamentals of Programming for Computer Operations.	2	21	4
Mathematics for Digital Computers.	2	15	0

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=23)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	48	91	43
In-plant Training.	29	50	29
Salary and Wage Administration .	27	47	33
Job Analysis and Job Evaluation Methods.	21	50	36
Maintaining Efficient and Up-To-Date Personnel Records. . .	21	22	21
Employee Benefit Plans	20	40	27
Industrial Safety and Medical Services	7	21	7
Management and Labor Relations .	7	21	0

TABLE 18

FINANCIAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	50	50	8
Taxes	38	46	8
Budgets	25	42	25
Managerial Accounting	23	46	15
Financial Planning and Forecasting	8	25	0
New Developments in Equipment Replacement Policy	0	36	0

TABLE 19

MANUFACTURING AND PRODUCTION
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Methods Analysis and Work Simplification	30	50	0
Quality Control	14	14	0
Organization and Management of Purchasing Operations	0	25	13
Value Analysis	0	17	17
Materials Handling	0	14	0

No need was indicated by middle managers for themselves or those they supervise for any of the other courses.

TABLE 20

MARKETING
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Marketing. . . .	40	50	10
Application of Management Science and Computers to Marketing Problems	33	33	0
Physical Distribution Methods. .	33	33	0
Marketing Management	30	50	0
Product Planning	20	50	10
Marketing Research	20	40	10
Fundamentals of Pricing.	10	20	0
Packaging Design and Development	0	33	0
Brand Marketing.	0	30	0

TABLE 21

SALES MANAGEMENT
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	59	77	41
Supervision of Field Salesmen. .	53	77	29
Selection and Evaluation of Field Salesmen	50	81	38
Training of Field Salesmen . . .	47	82	41
Compensation of Field Salesmen .	24	48	24

TABLE 22

INTERNATIONAL MANAGEMENT
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
United States Foreign Economic Policy.	20	20
Monetary Exchange Problems	0	20
Sources of Funds: Financing of Day-to-Day Transactions	0	20
International Economic Organizations	0	17
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	0	17

Middle managers indicated no need on the part of those they supervise for any of the courses.

TABLE 23

RESEARCH AND DEVELOPMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Evaluation of the Research and Development Programs	17	17	0
Supervision and Management of Research Services.	14	43	14
Building Research and Development Teams.	14	28	0
Guidelines for Selecting and Appraising New Projects. . . .	14	14	0
Planning Budgeting and Control of Projects.	13	38	13

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=21) of the 52 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-two percent (N=48) had completed high school, 48 percent (N=25) had the bachelor's degree, and 15 percent (N=8) had the master's degree. One person had the doctorate in a field which was not specified. Thirteen percent (N=7) went to business school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Architecture	1	0
Business Administration.	7	2
Engineering.	3	0
Law.	0	4
Liberal Arts	8	0
Mineral Industries	1	0
Psychology	2	0
Other (not specified).	3	2
Total	25	8

The major areas of work for the middle managers in Insurance are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	27	52
Finance.	5	10
Industrial Relations	1	2
Manufacturing.	1	2
Marketing and Sales.	6	12
Production Control — Records.	2	4
Purchasing and Procurement	2	4
Research and Development	1	2
Other (not specified).	6	12
Total	51	100

Methods of Updating

Forty-two percent (N=21) of the middle managers would take a credit course and 60 percent (N=31) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the bachelor's degree in business administration. No one was planning to enroll.

Eighty-eight percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time.	13	28
Job demands no more education.	10	22
Not interested	6	13
Can do better on my own.	3	7
Live too far from educational center	1	2
Cannot afford it	1	2
Not a high school graduate	1	2
Other (not specified).	11	24
Total	46	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=52)

	Number Managers	Percent Managers
Attendance at regional or national meetings of professional societies.	30	58
Workshops or seminars on managerial topics .	26	50
Company in-service training courses.	20	38
Managerial development within company. . . .	16	31
Short refresher courses at colleges or universities	8	15
Correspondence courses	5	10
Workshops or seminars in liberal arts or humanities	3	6
Television courses	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=51)

			Percent		
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	75	25	0	0	0
In-plant reports and bulletins	64	24	6	4	2
Subordinate-superior discussions or meetings	60	34	6	0	0
Business reports	39	37	22	2	0
Management journals	27	45	20	4	4
Lectures, conferences, workshops and seminars	25	51	18	4	2
Technical books, reports, abstracts and indexes	18	48	18	16	0
Company in-service courses	18	28	20	24	10
Scientific and technical journals	12	42	14	32	0
Manufacturer's literature	8	17	19	56	0
Use of consultants	6	8	18	68	0
Professional society meetings	4	44	24	24	4
College and university evening courses	2	4	8	80	6
College and university day courses	0	2	0	98	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=52)

	Number Managers	Percent Managers
Correspondence courses	18	35
Programmed instruction	17	33
Educational television	13	25
Courses recorded on records.	6	12
Courses recorded on tapes.	5	10

No managers reported a preference for two-way radio courses or two-way telephone courses.

Company Attitudes Toward Education

Of the 51 managers responding to a question on the attitude of their immediate superior toward continuing their education, 49 percent (N=25) said the superior encouraged them and 51 percent (N=26) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities as follows:

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=49)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	96	4	0	0
Attend professional meetings	90	6	4	0
Hold office in professional societies	86	10	2	2
Attend seminars or workshops away from the company.	78	12	2	8
Enroll for advanced work .	68	18	0	14
Write technical and professional papers. . .	48	28	0	24
Educational leave of absence.	6	10	27	57

Seventy-seven percent of the middle managers indicated that they were employed by companies which provided in-service training, and 23 percent were not. Forty-two percent said the training was entirely on company time, 54 percent said it was partly on company time, two percent said it was not on company time, and two percent did not know.

Eighty-one percent reported that their company had an educational assistance plan. Seventeen percent said it did not and two percent did not know. Sixty-five percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company as indicated by the 37 managers who responded to this question follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	7
About 3/4	10
About 2/3	2
About 1/2	12
About 1/3	0
Less than 1/3	2
Don't know	4
Total	37

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	1
251 - 300	17
201 - 250	0
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	1
Don't know	16
Total	35

When asked about the effect of available company educational assistance in motivating them to undertake further education, five percent of the middle managers said it had strongly encouraged them, 11 percent said it had partially influenced them, and 84 percent said it had no effect. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the category of Insurance, 46 first-line supervisors from eight companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 46 first-line supervisors in the category of Insurance were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Communications	60
Fundamentals of the Supervisor's Job	56
The Tools and Techniques of Effective Supervision	51
Human Aspect of Management	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=45)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	25	56	36	80
The Tools and Techniques of Effective Supervision	23	51	36	80
Inter-Departmental Cooperation	20	44	36	80
Decision Making	19	42	35	78
Supervisor's Role in Employee Discipline	17	38	36	80
Supervisor's Role in Company Economics	17	38	36	80
Employee Training and Evaluation				
Evaluation of Employee Performance	21	47	35	78
Employee Training	13	30	30	69
Safety	1	2	6	13
The Supervisor and the Union				
Grievance Procedure and Arbitration	1	2	9	20
Labor Relations Legislation	1	2	1	2
Labor Relations	0	0	1	2
Developing Those We Supervise				
Communications	27	60	38	84
Human Aspect of Management	23	51	36	80
Leadership	21	47	35	78
Developing the Work Team	16	36	28	63

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Sixty-five percent (N=30) of the first-line supervisors were 40 years of age or younger. Eighty-nine percent (N=41) were high school graduates, 54 percent (N=25) had the bachelor's degree, and four percent (N=2) had the master's degree; no one had the doctorate. Twenty percent (N=9) had gone to business school. The major fields of study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Architecture	1	0
Business Administration	16	2
Liberal Arts	6	0
Psychology	1	0
Other (not specified)	1	0
Total	25	2

Below is a listing of the major areas of work for the first-line supervisors in Insurance:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	27	59
Finance	5	11
Marketing and Sales	5	11
Production Control — Records	1	2
Purchasing and Procurement	1	2
Research and Development	1	2
Service (yard and labor personnel, etc.)	1	2
Other (not specified)	5	11
Total	46	100

Methods of Updating

Fifty-three percent (N=24) of the first-line supervisors would take a credit course and 61 percent (N=28) would take a non-credit course if they were offered locally.

One of the supervisors was currently enrolled for the bachelor's degree and one was planning to enroll for the master's degree. The major field of both was liberal arts.

For the 38 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time.	16	41
Job demands no more education.	6	16
Cannot afford it	4	11
Not interested	4	11
Live too far from educational center . .	3	8
Other (not specified).	5	13
Total	38	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=46)

	Number Supervisors	Percent Supervisors
Company in-service training courses. . .	23	50
Managerial development within company. .	16	35
Workshops or seminars on managerial topics	15	33
Correspondence courses	12	26
Attendance at regional or national meetings of professional societies . .	10	22
Short refresher courses at colleges or universities.	5	11
Workshops or seminars in liberal arts or humanities.	3	6

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=44)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	63	30	7	0	0
In-plant reports and bulletins . .	49	41	0	5	5
Subordinate-superior discussions or meetings.	45	44	7	2	2
Business reports	33	40	17	10	0
Management journals.	24	40	22	12	2
Technical books, reports, abstracts, and indexes	22	29	27	15	7
Lectures, conferences, workshops, and seminars	20	46	22	10	2
Company in-service courses	18	33	10	26	13
Use of consultants	18	21	8	48	5
Scientific and technical journals.	16	24	31	24	5
Professional society meetings. . .	13	20	13	44	10
Manufacturer's literature.	8	8	18	63	3
College and university evening courses.	8	5	8	64	15
College and university day courses	0	3	3	81	13

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=46)

	Number Supervisors	Percent Supervisors
Correspondence courses	22	48
Programmed instruction	20	43
Educational television	18	39
Courses recorded on tapes	10	22
Courses recorded on records	9	20
Two-way telephone courses	6	13
Two-way radio courses	3	7
Other (not specified)	1	2

Company Attitudes Toward Education

A total of 43 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-seven percent (N=20) said the superior encouraged them; 49 percent (N=21) said he was noncommittal, and four percent (N=2) said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in Table 40. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY
POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=42)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	97	3	0	0
Hold office in professional societies	70	15	5	10
Attend professional meetings	69	18	5	8
Enroll for advanced work	59	35	3	3
Attend seminars or workshops away from the company	47	27	8	18
Write technical and professional papers	32	34	5	29
Educational leave of absence	7	12	29	52

Seventy-two percent of the supervisors indicated that they were employed by companies which provided in-service training; 26 percent said their company did not provide it and two percent did not know. Thirty-five percent said the training was completely on company time, 49 percent said it was partly on company time, 11 percent said it was entirely on the men's own time, and five percent did not know.

Fifty-six percent reported that their company had an educational assistance plan; 37 percent said it did not, and seven percent did not know. Thirty-two percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 21 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	4
About 3/4	6
About 2/3	0
About 1/2	5
About 1/3	0
Less than 1/3	0
Don't know	6
Total	21

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	1
251 - 300	1
201 - 250	0
151 - 200	1
101 - 150	0
51 - 100	0
50 or less	0
Don't know	18
Total	21

When asked what the effect of available financial assistance was on their motivation to undertake further education, nine percent of the supervisors said it strongly encouraged them, 26 percent said it partially influenced them, and 65 percent said it had no effect.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN INSURANCE COMPANIES WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT.

The educational needs of managers and supervisors in the category of Insurance were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." The results were quite similar, with the exception of the educational needs of top management and those supervised by middle management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers.

	"Should Have" Percent	
	Insurance N=30	Total Report N=705
Communication in the Organization.	*	59
Management Development	*	53
Long-range Planning and Forecasting for Corporate Growth	*	50
Effective Speaking	*	50
Effective Written Communications	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Insurance N=30	Total Report N=705
Effective Speaking	73	67
Effective Written Communications	70	74
Working Effectively with Individuals and Groups	63	66
Effective Reading Skills	60	62
Listening Skills	55	62
Performance Appraisal and Counseling Techniques	50	57
Communication in the Organization	*	65
Management Development	*	56
Human Aspect of Management	*	54
Improving Decision Making of Managers	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Insurance and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Insurance N=52	Total Report N=1,202
Management Development	67	66
Working Efficiently with Individuals	65	65
Supervisory Training and Employee Development	59	53
Effective Communication in the Organization	58	64
Performance Appraisal and Counseling Techniques	50	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Insurance N=52	Total Report N=1,202
Working Efficiently with Individuals	79	62
Supervisory Training and Employee Development	71	61
Business Letter Writing	65	*
Effective Communication in the Organization	60	56
Listening Skills	58	50
Management Development	58	*
Oral Presentation of Reports	54	*
Performance Appraisal and Counseling Techniques	52	*
Effective Reading Skills	50	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Insurance N=46	Total Report N=1,713
Communications	60	51
Fundamentals of the Supervisor's Job	56	64
The Tools and Techniques of Effective Supervision	51	55
Human Aspect of Management	51	53
Leadership	*	57
Decision Making	*	54

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE MACHINERY (EXCEPT ELECTRICAL) INDUSTRY IN PENNSYLVANIA

M-71

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN THE
MACHINERY (EXCEPT ELECTRICAL)
INDUSTRY IN PENNSYLVANIA

M-71

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

Top Management. 2
Middle Management 2
First-Line Supervision. 3

TOP MANAGEMENT 3

Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 8

Educational Needs Within Areas of Managerial Responsibility 8
Background Information of Middle Managers 15

Personal, Educational, and Professional Background. 15
Methods of Updating 16
Company Attitudes Toward Education. 18

FIRST-LINE SUPERVISION 20

Educational Needs 20
Background Information of First-Line Supervisors. 21

Personal, Educational, and Professional Background. 21
Methods of Updating 22
Company Attitudes Toward Education. 25

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE MACHINERY (EXCEPT ELECTRICAL) INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 27

Top Management. 27
Middle Management 28
First-Line Supervision. 29

RECOMMENDATIONS. 30

For the University. 30
For Business and Industry 30
For the Individual Manager and Supervisor 31
For Professional Associations 31

LIST OF TABLES

PAGE

1. Top Management — General Management. 4
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 5
4. Top Management — Economics 5
5. Top Management — Quantitative Methods Applied to Business and Industry. 6
6. Top Management — Industrial Relations and Personnel Management. 6
7. Top Management — Financial Management. 6
8. Top Management — Manufacturing and Production. 7
9. Top Management — Marketing 7
10. Top Management — International Management. 7
11. Middle Management — General Management 9
12. Middle Management — Behavioral Science and Management. 9
13. Middle Management — Communication. 10
14. Middle Management — Economics. 10
15. Middle Management — Quantitative Methods Applied to Business and Industry. 11
16. Middle Management — Computer Operations and Data Processing. 11
17. Middle Management — Industrial Relations and Personnel Management. 12
18. Middle Management — Financial Management 12
19. Middle Management — Manufacturing and Production 13
20. Middle Management — Marketing. 13
21. Middle Management — Sales Management 14
22. Middle Management — International Management 14

PAGE

23. Middle Management — Research and Development 15

24. Middle Management — Major Fields of Study of College Graduates 15

25. Middle Management — Major Areas of Work. 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 16

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 17

28. Middle Management — Sources of Information Used in Updating. . . 17

29. Middle Management — Preference for Media of Course Presentation. 18

30. Managers' Perception of Company Policy Toward Professional Development 18

31. Middle Management — Proportion of Tuition Paid 19

32. Middle Management — Maximum Amount of Tuition Paid Per Year. . . 19

33. First-Line Supervision Training Needs 21

34. First-Line Supervision — Major Fields of Study of College Graduates 22

35. First-Line Supervision — Major Areas of Work 22

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 23

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 23

38. First-Line Supervision — Sources of Information Used in Updating. 24

39. First-Line Supervision — Preference for Media of Course Presentation. 25

40. Supervisors' Perception of Company Policy Toward Professional Development 25

41. First-Line Supervision — Proportion of Tuition Paid. 26

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year. 26

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE MACHINERY (EXCEPT ELECTRICAL) INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 231 managers and supervisors from 15 companies in the Machinery (Except Electrical) industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, 12 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said ten courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for three courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need two of the listed courses. (Page 8)

The educational level was good, with 48 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 11 out of 16 courses. (Page 20)

Seventeen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Machinery (Except Electrical), 42 top managers from 15 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	60
Management Development.	60
Performance Appraisal and Counseling Techniques . .	58
Effective Speaking.	56
Overall Strategy and Goals.	54
Improving Decision Making of Managers	54
Working Effectively with Individuals and Groups . .	53
Managerial Motivation	53
Long-range Planning and Forecasting for Corporate Growth.	51
Industrial Organization and Administration.	50
Listening Skills.	50
Effective Written Communications.	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Communication in the Organization	68
Effective Written Communications.	64
Effective Reading Skills.	63
Management Development.	63
Listening Skills.	60
Performance Appraisal and Counseling Techniwues . .	60
Human Aspect of Management.	56
Working Effectively with Individuals and Groups . .	55
Improving Decision Making of Managers	54
Effective Speaking.	54

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=41)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	54	88	54
Overall Strategy and Goals . . .	54	82	31
Long-range Planning and Forecasting for Corporate Growth .	51	75	24
Industrial Organization and Administration	50	83	38
Effective Utilization of Manpower Resources and Allocation	48	76	35
Management Reporting Systems . .	46	74	33
Impact of Computer Technology. .	45	83	30
Policy Formation	35	75	30
Impact of Science and Technology on Business Management	33	73	10
Managing Major Change in Organizations.	33	69	18
Ethical Considerations in Business	33	59	33
Management of Research and Development.	31	52	26
Impact of Government Legislation and Controls on Business . . .	21	59	8
Impact of Multinational Aspects of Planning and Control. . . .	10	30	5

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	60	93	68
Working Effectively with Individuals and Groups	53	86	55
Managerial Motivation.	53	82	47
Human Aspect of Management . . .	49	85	56
Creativity and Innovation. . . .	43	73	45
Political, Social, and Cultural Trends and Their Impact on Business Management.	8	34	8

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=42)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	56	71	54
Listening Skills	50	83	60
Effective Written Communications	50	76	64
Effective Reading Skills	45	83	63

TABLE 4

ECONOMICS
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	23	58	13
Comparative Economic Systems . .	13	39	5

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=41)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	37	74	17
Survey Course on Quantitative Methods.	29	66	18

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=41)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	60	88	63
Performance Appraisal and Counseling Techniques.	58	93	60
Criteria and Selection of Personnel.	46	68	39
Incentives	33	66	8
Personnel Policy Affecting Labor-Management Relations . .	30	63	30
Personnel Policy Affecting Wage and Salary Structure	30	60	20
Personnel Policy Affecting Employment Practices	25	53	28

TABLE 7

FINANCIAL MANAGEMENT
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting and Budgeting.	33	64	28
Capital Budgeting.	26	52	28
Fundamentals of Financial Reporting and Statement Analysis	25	63	23
Financial Planning and Forecasting.	23	48	10

TABLE 8

MANUFACTURING AND PRODUCTION
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	36	72	36
Operations Planning and Control.	23	51	23
Operations Research Applied to Production	20	50	20

TABLE 9

MARKETING
(N=41)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	46	68	41
Pricing.	33	58	30
Marketing Research	25	50	18
Logistics Planning	18	39	8

TABLE 10

INTERNATIONAL MANAGEMENT
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	15	40	8
International Economic Analysis.	5	21	3

MIDDLE MANAGEMENT

In the industrial category of Machinery (Except Electrical), 77 middle managers from 15 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development.	68
Working Efficiently with Individuals.	67
Effective Communication in the Organization	58

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Supervisory Training and Employee Development . . .	54
Effective Communication in the Organization	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Machinery (Except Electrical) category.

TABLE 11

GENERAL MANAGEMENT (N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	68	96	38
Working Efficiently with Individuals.	67	93	49
Supervisory Training and Employee Development	49	84	54
Performance Appraisal and Counseling Techniques.	45	87	37
Criteria and Selection of Personnel for Promotion. . . .	43	85	23
Impact of Computer Technology .	32	62	18
Long-range Planning and Forecasting for Corporate Growth .	32	51	19
Analyzing Organizational Behavior	28	85	18
Effective Utilization of Manpower Resources and Allocation	25	64	21
The Application of Information Technology on Decision Making.	25	52	18
Impact of Science and Technology on Business Management	20	71	21
Principles and Analysis of Office Systems	20	54	15
Impact of Government Legislation and Controls on Business . . .	8	42	10

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT (N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . . .	46	84	40
Human Aspect of Management . . .	36	83	31
Understanding Group Interaction and Behavior	31	73	20
Management Psychology.	23	72	20
Social and Cultural Trends and Their Impact on Business Management	9	36	10
Industrial Sociology	8	43	15
Impact of Consumer Behavior on Management	6	22	10

TABLE 13

COMMUNICATION
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	58	90	50
Effective Report Writing	49	77	39
Oral Presentation of Reports . .	47	86	43
Listening Skills	40	70	39
Effective Reading Skills	39	79	42
Conference Leadership.	39	75	23
Business Letter Writing.	37	70	31

TABLE 14

ECONOMICS
(N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Costs.	30	60	14
The Price Mechanism.	24	56	12
Fundamentals of Economics. . . .	14	44	13
Economic Trends.	13	39	9
Economics of Technology and Innovation	11	43	8
International Economics.	6	26	9
The Economic Systems of the United States.	4	39	12
Comparative Economic Systems . .	3	18	7

TABLE 13

COMMUNICATION
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	58	90	50
Effective Report Writing	49	77	39
Oral Presentation of Reports . .	47	86	43
Listening Skills	40	70	39
Effective Reading Skills	39	79	42
Conference Leadership.	39	75	23
Business Letter Writing.	37	70	31

TABLE 14

ECONOMICS
(N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Costs.	30	60	14
The Price Mechanism.	24	56	12
Fundamentals of Economics. . . .	14	44	13
Economic Trends.	13	39	9
Economics of Technology and Innovation	11	43	8
International Economics.	6	26	9
The Economic Systems of the United States.	4	39	12
Comparative Economic Systems . .	3	18	7

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY (N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	29	75	14
Applying Program Evaluation and Review Techniques (PERT) . . .	24	62	16
Inventory Management	23	62	18
Replacement Management	21	61	11
Statistical Decision Theory. . .	21	51	9
Review of Basic Mathematics. . .	20	44	31
Statistical Procedures and Methods.	17	50	22
Linear Programming	17	37	9
Probability Theory	12	41	19
Dynamic Programming.	6	35	7
Matrix Algebra	6	22	10
Calculus of Infinite Series. . .	6	16	13
Calculus of Finite Differences .	6	15	13
Waiting Lines.	4	30	7
Analytic Geometry.	4	20	17

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING (N=69)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management	29	65	25
Data Systems and Processing. . .	29	60	21
Fundamentals of Programming for Computer Operations.	22	50	24
Mathematics for Digital Computers	10	34	19

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=30)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management and Labor Relations .	35	65	17
In-plant Training.	33	54	21
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	27	64	13
Job Analysis and Job Evaluation Methods.	25	63	4
Industrial Safety and Medical Services	22	44	13
Employee Benefit Plans	21	42	4
Salary and Wage Administration .	17	60	4
Maintaining Efficient and Up-To-Date Personnel Records	17	43	4

TABLE 18

FINANCIAL MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	50	72	33
Fundamentals of Financial Reporting and Statement Analysis	50	69	31
Managerial Accounting.	47	65	18
Financial Planning and Forecasting.	39	72	11
New Developments in Equipment Replacement Policy	35	82	24
Taxes.	25	50	19

TABLE 19

MANUFACTURING AND PRODUCTION
(N=46)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Production Planning and Control Management	45	72	27
Value Analysis	44	77	31
Materials Handling	42	72	33
Methods Analysis and Work Simplification	42	70	30
Maintenance Planning and Control	40	65	23
Inventory Management	36	68	27
Engineering Economy.	33	70	15
Quality Control.	33	64	29
Organization and Management of Purchasing Operations.	32	66	20
Automation	31	67	26

TABLE 20

MARKETING
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Pricing.	35	41	6
Marketing Management	33	53	13
Fundamentals of Marketing.	31	56	6
Product Planning	29	70	18
Marketing Research	19	63	6
Physical Distribution Methods. . .	19	38	6
Packaging Design and Development	13	20	7
Application of Management Science and Computers to Marketing Problems	12	30	6
Brand Marketing.	0	33	13

TABLE 21

SALES MANAGEMENT
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	33	40	0
Selection and Evaluation of Field Salesmen	27	47	7
Supervision of Field Salesmen. .	27	40	7
Training of Field Salesmen . . .	27	40	7
Compensation of Field Salesmen .	20	47	7

TABLE 22

INTERNATIONAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Monetary Exchange Problems . . .	9	45	9
Appraising and Developing Foreign Markets.	9	45	9
Sources of Funds: Financing of Day-to-Day Transactions. . . .	9	36	9
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	9	27	9
Commercial Policy and Trade Control.	8	31	8
International Law.	8	23	8
International Economic Organizations.	0	42	8
International Understanding. . .	0	33	8
United States Foreign Economic Policy	0	27	9
International Economic Analysis.	0	25	8

TABLE 23

RESEARCH AND DEVELOPMENT
(N=16)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning Budgeting and Control of Projects.	50	81	6
Evaluation of the Research and Development Programs	31	75	6
Guidelines for Selecting and Appraising New Projects. . . .	31	62	0
Building Research and Development Teams	19	50	0
Supervision and Management of Research Services.	13	51	0

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-five percent (N=27) of the 77 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-three percent (N=71) had completed high school, 48 percent (N=37) had the bachelor's degree, and five percent (N=4) had the master's degree. No one had the doctorate. Sixteen percent (N=12) went to business school and 14 percent (N=11) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture	2	0
Business Administration	7	1
Engineering	22	1
Law	0	1
Liberal Arts.	4	1
Psychology.	1	0
Other (not specified)	1	0
Total.	37	4

The major areas of work for the middle managers in the Machinery (Except Electrical) industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration.	14	18
Engineering	11	15
Finance	6	8
Industrial Relations.	3	4
Maintenance	3	4
Manufacturing	18	24
Marketing and Sales	6	8
Production Control — Records	5	7
Purchasing and Procurement.	6	8
Research and Development.	1	1
Other (not specified)	2	3
Total.	75	100

Methods of Updating

Sixty-two percent (N=47) of the middle managers would take a credit course and 75 percent (N=56) would take a non-credit course if they were offered locally.

One manager was enrolled for the master's degree. One was planning to enroll for the bachelor's degree and five for the master's. Five of those enrolled or planning to enroll wanted to study business administration and two engineering.

Seventy-seven percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	20	34
Live too far from educational center. . . .	16	27
Not a high school graduate.	5	8
Job demands no more education	4	7
Cannot afford it.	4	7
Not interested.	4	7
Can do better on my own	1	2
Other (not specified)	5	8
Total.	59	100

The variety of educational methods used by middle managers for updating within the past four years is shown below:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=77)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics.	39	51
Attendance at regional or national meetings of professional societies. . . .	37	48
Managerial development within company . . .	23	30
Company in-service training courses	20	26
Correspondence courses.	16	21
Short refresher courses at colleges or universities.	12	16
Workshops or seminars in liberal arts or humanities.	6	8
Television courses.	3	4
High school courses	2	3

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=74)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	59	32	8	0	1
Subordinate-superior discussions or meetings	46	42	7	4	1
In-plant reports and bulletins . . .	43	38	8	3	8
Manufacturer's literature.	28	52	14	5	1
Scientific and technical journals. .	20	45	27	5	3
Technical books, reports, abstracts and indexes.	15	52	26	4	3
Management journals.	15	51	26	5	3
Business reports	15	44	32	10	0
Lectures, conferences, workshops and seminars	14	43	26	10	6
Professional society meetings. . . .	14	38	24	18	6
Company in-service courses	8	23	14	20	35
Use of consultants	3	13	46	33	6
College and university evening courses.	3	9	12	49	27
College and university day courses	0	1	6	87	6

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION (N=77)

	Number Managers	Percent Managers
Correspondence courses.	34	44
Programmed instruction.	32	42
Educational television.	27	35
Courses recorded on records	14	18
Courses recorded on tapes	13	17
Two-way telephone courses	7	9
Two-way radio courses	4	5
Other (not specified)	1	1

Company Attitudes Toward Education

Of the 76 managers responding to a question on the attitude of their immediate superior toward continuing their education, 49 percent (N=37) said the superior encouraged them and 50 percent (N=38) said the superior was noncommittal. One percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT (N=74)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	71	9	0	20
Attend professional meetings	66	22	5	7
Enroll for advanced work .	59	32	1	8
Hold office in professional societies	55	26	1	18
Attend seminars or workshops away from the company.	53	31	5	11
Write technical and professional papers. . .	45	29	0	26
Educational leave of absence.	11	30	16	43

Fifty percent of the middle managers indicated that they were employed by companies which provided in-service training; 46 percent were not, and four percent did not know. Twenty-two percent said the training was entirely on company time, 46 percent said it was partly on company time, 19 percent said it was not on company time, and 13 percent did not know.

Eighty-one percent reported that their company had an educational assistance plan. Fourteen percent said it did not and five percent did not know. Seventy-three percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 59 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	21
About 3/4	8
About 2/3	0
About 1/2	25
About 1/3	2
Less than 1/3	0
Don't know	3
Total	59

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	13
251 - 300	1
201 - 250	1
151 - 200	1
101 - 150	0
51 - 100	5
50 or less	1
Don't know	35
Total	57

When asked about the effect of available company educational assistance in motivating them to undertake further education, 25 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 50 percent said it had no effect. There is an inconsistency here: while 50 percent said the availability of financial aid motivated them to some extent, only one person was actually enrolled and six were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Machinery (Except Electrical), 112 first-line supervisors from 15 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 112 first-line supervisors in the category of Machinery (Except Electrical) were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job.	69
Leadership.	62
Human Aspect of Management.	61
The Tools and Techniques of Effective Supervision .	60
Decision Making	58
Supervisor's Role in Employee Discipline.	55
Communications.	54
Inter-Departmental Cooperation.	51
Safety.	51
Evaluation of Employee Performance.	50
Supervisor's Role in Company Economics.	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=111)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	74	69	98	91
The Tools and Techniques of Effective Supervision	67	60	98	88
Decision Making	63	58	97	89
Supervisor's Role in Employee Discipline	60	55	88	81
Inter-Departmental Cooperation	55	51	95	88
Supervisor's Role in Company Economics	54	50	89	82
Employee Training and Evaluation				
Safety	56	51	86	78
Evaluation of Employee Performance	55	50	91	83
Employee Training	53	49	86	80
The Supervisor and the Union				
Grievance Procedure and Arbitration	51	47	82	76
Labor Relations	47	44	78	73
Labor Relations Legislation	20	19	54	50
Developing Those We Supervise				
Leadership	67	62	96	89
Human Aspect of Management	66	61	98	90
Communications	58	54	93	86
Developing the Work Team	49	45	92	84

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Thirty-eight percent (N=42) of the first-line supervisors were 40 years of age or younger. Seventy-six percent (N=84) were high school graduates, 17 percent (N=19) had the bachelor's degree, and one percent (N=1) had the master's degree; no one had the doctorate. Four percent (N=4) had gone to business school and 15 percent (N=17) to trade school. The major fields of study for a degree are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	5	1
Education	1	0
Engineering	8	0
Liberal Arts.	2	0
Psychology.	1	0
Other (not specified)	2	0
Total.	19	1

Below is a listing of the major areas of work for the first-line supervisors in the Machinery (Except Electrical) industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration.	5	5
Engineering	8	7
Finance	3	3
Industrial Relations.	5	5
Maintenance	3	3
Manufacturing	69	62
Marketing and Sales	5	5
Production Control - Records.	3	3
Research and Development.	1	1
Service (yard and labor personnel, etc.)	1	1
Traffic and Transportation.	2	2
Other (not specified)	3	3
Total.	108	100

Methods of Updating

Forty-eight percent (N=52) of the first-line supervisors would take a credit course and 70 percent (N=78) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for the associate degree and one for the bachelor's. Ten planned to enroll: four for the associate degree, two for the bachelor's, and four for the master's. Major fields of study for those enrolled or planning to enroll were: six in business administration, five in engineering and one in education.

For the 87 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	18	22
Not a high school graduate.	16	18
Cannot afford it.	16	18
Job demands no more education	12	14
Not interested.	8	9
Live too far from educational center. .	6	7
Can do better on my own	3	3
Other (not specified)	8	9
Total.	87	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=112)

	Number Supervisors	Percent Supervisors
Company in-service training courses . .	56	50
Managerial development within company .	41	37
Workshops or seminars on managerial topics.	31	28
Correspondence courses.	22	20
Attendance at regional or national meetings of professional societies. .	21	19
Short refresher courses at colleges or universities	13	12
Workshops or seminars in liberal arts or humanities	7	6
Television courses.	2	2
High school courses to improve job performance	1	1

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=103)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins . . .	59	33	2	3	3
Discussion with company personnel (informal or formal)	55	39	4	2	0
Subordinate-superior discussions or meetings.	38	49	9	4	0
Manufacturer's literature.	22	48	18	8	4
Company in-service courses	18	30	11	17	24
Management journals.	15	40	20	18	7
Technical books, reports, abstracts, and indexes.	14	29	27	27	3
Lectures, conferences, workshops, and seminars	12	32	23	17	16
Scientific and technical journals. .	10	29	21	39	1
College and university evening courses.	7	7	9	64	13
Business reports	6	34	28	31	1
Professional society meetings. . . .	6	17	21	53	3
Use of consultants	5	16	14	61	4
College and university day courses .	0	2	2	88	8

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=112)

	Number Supervisors	Percent Supervisors
Correspondence courses.	53	47
Programmed instruction.	52	46
Educational television.	22	20
Courses recorded on records	11	10
Courses recorded on tapes	10	9
Two-way telephone courses	2	2
Two-way radio courses	2	2
Other (not specified)	2	2

Company Attitudes Toward Education

A total of 109 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty-three percent (N=58) said the superior encouraged them; 47 percent (N=51) said he was noncommittal; and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY
POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=100)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	88	6	0	6
Attend professional meetings	70	11	3	16
Enroll for advanced work .	63	16	0	21
Hold office in professional societies	59	16	0	25
Attend seminars or workshops away from the company.	59	12	2	27
Write technical and professional papers. . .	45	10	1	44
Educational leave of absence.	13	8	5	74

Sixty-five percent of the supervisors indicated that they were employed by companies which provided in-service training; 29 percent said their company did not provide it and six percent did not know. Forty-five percent said the training was completely on company time, 27 percent said it was partly on company time, 12 percent said it was entirely on the men's own time, and 16 percent did not know.

Seventy-four percent reported that their company had an educational assistance plan; 21 percent said it did not, and five percent did not know. Sixty-five percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 75 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	23
About 3/4	4
About 2/3	2
About 1/2	37
About 1/3	0
Less than 1/3	0
Don't know	9
Total	75

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	16
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	1
51 - 100	1
50 or less	0
Don't know	55
Total	73

When asked what the effect of available financial assistance was on their motivation to undertake further education, 28 percent of the supervisors said it strongly encouraged them, 36 percent said it partially influenced them, and 36 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 64 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only three of the 112 respondents were actually enrolled and ten were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE MACHINERY (EXCEPT ELECTRICAL) INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN THE TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Machinery (Except Electrical) were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." Where the indicated needs were 50 percent or more, managers and supervisors in this category had educational needs similar to those of the group as a whole.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Machinery (Except Electrical) N=42	Total Report N=705
Communication in the Organization	60	59
Management Development	60	53
Performance Appraisal and Counseling Techniques	58	*
Effective Speaking	56	50
Overall Strategy and Goals	54	50
Improving Decision Making of Managers	54	*
Working Effectively with Individuals and Groups	53	*
Managerial Motivation	53	*
Long-range Planning and Forecasting for Corporate Growth	51	50
Effective Written Communications	50	50
Industrial Organization and Administration	50	*
Listening Skills	50	*

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Machinery (Except Electrical) N=42	Total Report N=705
Communication in the Organization	68	65
Effective Written Communications	64	74
Effective Reading Skills	63	62
Management Development	63	56
Listening Skills	60	62
Performance Appraisal and Counseling Techniques	60	57
Human Aspect of Management	56	54
Working Effectively with Individuals and Groups	55	66
Effective Speaking	54	67
Improving Decision Making of Managers	54	54

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Machinery (Except Electrical) and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Machinery (Except Electrical) N=77	Total Report N=1,202
Management Development	68	66
Working Efficiently with Individuals	67	65
Effective Communication in the Organization	58	64
Supervisory Training and Employee Development	*	53

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Machinery (Except Electrical) N=77	Total Report N=1,202
Supervisory Training and Employee Development.	54	61
Effective Communication in the Organization.	50	56
Working Efficiently with Individuals	*	62
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Machinery (Except Electrical) N=112	Total Report N=1,713
Fundamentals of the Supervisor's Job	69	64
Leadership	62	57
Human Aspect of Management	61	53
The Tools and Techniques of Effective Supervision. . .	60	55
Decision Making.	58	54
Supervisor's role in Employee Discipline	55	*
Communications	54	51
Inter-Departmental Cooperation	51	*
Safety	51	*
Evaluation of Employee Performance	50	*
Supervisor's Role in Company Economics	50	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an intregal part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10 Aircraft, Motors, and Parts
E-11 Chemical and Allied
E-12 Electrical Machinery and Equipment
E-13 Machinery
E-14 Mining
E-15 Paper and Allied
E-16 Petroleum Refining
E-17 Primary Metals
E-18 Professional, Scientific, and Controlling Instruments
E-19 Research and Consulting Laboratories
E-20 Transportation
E-21 Electric Utilities
E-22 Gas Utilities
E-23 Telephone and Telegraph
E-24 Water Utilities
E-53 Construction
E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54 Hospital Administrators
H-55 Nursing Service and Nursing Education
H-56 Supervisory Personnel in the Dietary Department
H-57 Supervisory Personnel in the Engineering and Maintenance Department
H-58 Supervisory Personnel in the Business Office and Purchasing Department
H-59 Supervisory Personnel in the Medical Records Department
H-60 Supervisory Personnel in the Institutional Care Departments
H-61 Personnel Directors
H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PETROLEUM REFINING INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PETROLEUM REFINING INDUSTRY IN PENNSYLVANIA

M-72

Samuel S. Dubin, Ph.D.
Everett Alderman, Ed.D.
H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

- Top Management. 2
- Middle Management 2
- First-Line Supervision. 3

TOP MANAGEMENT 3

- Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 8

- Educational Needs Within Areas of Managerial Responsibility 8
- Background Information of Middle Managers 15
  - Personal, Educational, and Professional Background 15
  - Methods of Updating. 16
  - Company Attitudes Toward Education 18

FIRST-LINE SUPERVISION 20

- Educational Needs 20
- Background Information of First-Line Supervisors. 21
  - Personal, Educational, and Professional Background 21
  - Methods of Updating. 22
  - Company Attitudes Toward Education 25

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PETROLEUM REFINING INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 27

- Top Management. 27
- Middle Management 28
- First-Line Supervision. 29

RECOMMENDATIONS. 30

- For the University. 30
- For Business and Industry 30
- For the Individual Manager and Supervisor 31
- For Professional Associations 31

LIST OF TABLES

PAGE

1. Top Management — General Management 4
2. Top Management — Behavioral Science and Management. 5
3. Top Management — Communications Techniques. 5
4. Top Management — Economics. 5
5. Top Management — Quantitative Methods Applied to Business and Industry 6
6. Top Management — Industrial Relations and Personnel Management 6
7. Top Management — Financial Management 6
8. Top Management — Manufacturing and Production 7
9. Top Management — Marketing. 7
10. Top Management — International Management 7
11. Middle Management — General Management. 9
12. Middle Management — Behavioral Science and Management. 9
13. Middle Management — Communication 10
14. Middle Management — Economics 10
15. Middle Management — Quantitative Methods Applied to Business and Industry 11
16. Middle Management — Computer Operations and Data Processing . . 11
17. Middle Management — Industrial Relations and Personnel Management 12
18. Middle Management — Financial Management. 12
19. Middle Management — Manufacturing and Production. 13
20. Middle Management — Marketing 13
21. Middle Management — Sales Management. 14
22. Middle Management — International Management. 14

PAGE

23. Middle Management — Research and Development. 15

24. Middle Management — Major Fields of Study of College Graduates. 15

25. Middle Management — Major Areas of Work 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education 16

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 17

28. Middle Management — Sources of Information Used in Updating . . 17

29. Middle Management — Preference for Media of Course Presentation 18

30. Managers' Perception of Company Policy Toward Professional Development. 18

31. Middle Management — Proportion of Tuition Paid. 19

32. Middle Management — Maximum Amount of Tuition Paid Per Year . . 19

33. First-Line Supervision Training Needs. 21

34. First-Line Supervision — Major Fields of Study of College Graduates. 22

35. First-Line Supervision — Major Areas of Work. 22

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 23

37. First-Line Supervision -- Educational Methods Used for Updating Within the Past Four Years 23

38. First-Line Supervision — Sources of Information Used in Updating 24

39. First-Line Supervision — Preference for Media of Course Presentation 25

40. Supervisors' Perception of Company Policy Toward Professional Development. 25

41. First-Line Supervision — Proportion of Tuition Paid 26

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 26

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PETROLEUM REFINING INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 81 managers and supervisors from six companies in the Petroleum Refining industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed 11 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said four courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need nine of the listed courses. (Page 8)

The educational level was quite high, with 64 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported general favorable attitudes toward education on the part of their companies. (Pages 15-18)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for two out of 16 courses. (Page 20)

Eleven percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Petroleum Refining, 14 top managers from six companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Management Development	67
Human Aspect of Management	62
Impact of Science and Technology on Business Management	62
Effective Utilization of Manpower Resources and Allocation	58
Improving Decision Making of Managers	58
Effective Speaking	54
Management Reporting Systems	54
Performance Appraisal and Counseling Techniques	54
Communication in the Organization	50
Managerial Motivation	50
Working Effectively with Individuals and Groups	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Management Development	58
Effective Written Communications	54
Impact of Science and Technology on Business Management	54
Communication in the Organization	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Impact of Science and Technology on Business Management	62	93	54
Improving Decision Making of Managers	58	100	25
Effective Utilization of Manpower Resources and Allocation	58	83	42
Management Reporting Systems	54	77	38
Industrial Organization and Administration	46	92	31
Long-range Planning and Forecasting for Corporate Growth	46	92	23
Policy Formation	46	77	8
Impact of Computer Technology	43	79	36
Overall Strategy and Goals	38	76	38
Ethical Considerations in Business	38	61	23
Managing Major Change in Organizations	23	77	15
Management of Research and Development	18	54	18
Impact of Multinational Aspects of Planning and Control	9	27	9
Impact of Government Legislation and Controls on Business	8	62	15

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management	62	85	17
Communication in the Organization	50	86	50
Working Effectively with Individuals and Groups	50	83	42
Managerial Motivation	50	75	31
Creativity and Innovation	42	75	42
Political, Social, and Cultural Trends and Their Impact on Business Management	8	50	8

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	54	92	46
Effective Written Communications	46	100	54
Effective Reading Skills	46	100	46
Listening Skills	46	77	38

TABLE 4

ECONOMICS
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	15	69	8
Comparative Economic Systems	8	46	8

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	36	65	29
Survey Course on Quantitative Methods.	25	50	17

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	67	100	58
Performance Appraisal and Counseling Techniques.	54	85	38
Personnel Policy Affecting Wage and Salary Structure. . .	46	77	23
Incentives	42	84	17
Criteria and Selection of Personnel.	38	84	31
Personnel Policy Affecting Labor-Management Relations . .	31	69	31
Personnel Policy Affecting Employment Practices	31	69	23

TABLE 7

FINANCIAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting and Budgeting.	46	61	23
Fundamentals of Financial Reporting and Statement Analysis	42	50	25
Capital Budgeting.	33	66	25
Financial Planning and Forecasting.	33	66	17

TABLE 8

MANUFACTURING AND PRODUCTION
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	46	69	23
Operations Planning and Control.	31	62	23
Operations Research Applied to Production	9	64	9

TABLE 9

MARKETING
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	27	63	18
Logistics Planning	27	54	9
Marketing Research	25	50	25
Pricing.	18	45	18

TABLE 10

INTERNATIONAL MANAGEMENT
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	9	27	0
International Economic Analysis.	0	27	0

MIDDLE MANAGEMENT

In the industrial category of Petroleum Refining, 22 middle managers from six companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Working Efficiently with Individuals.	67
Effective Communication in the Organization	65
Management Development.	56
Effective Report Writing.	53
Supervisory Training and Employee Development . . .	53
Listening Skills.	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Supervisory Training and Employee Development . . .	67
Effective Communication in the Organization	65
Effective Reading Skills.	56
Listening Skills.	56
Management Development.	56
Review of Basic Mathematics	56
Effective Report Writing.	53
Oral Presentation of Reports.	50
Working Efficiently with Individuals.	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Petroleum Refining category.

TABLE 11

GENERAL MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals.	67	95	50
Management Development	56	81	56
Supervisory Training and Employee Development	53	93	67
Performance Appraisal and Counseling Techniques.	44	88	38
Impact of Computer Technology. .	35	64	35
Effective Utilization of Manpower Resources and Allocations.	29	70	29
The Application of Information Technology on Decision Making.	29	70	29
Criteria and Selection of Personnel for Promotion. . . .	25	75	13
Long-range Planning and Forecasting for Corporate Growth.	24	59	12
Impact of Science and Technology on Business Management	18	65	35
Impact of Government Legislation and Controls on Business . . .	18	65	18
Analyzing Organizational Behavior	17	73	33
Principles and Analysis of Office Systems	7	47	7

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . . .	19	88	31
Understanding Group Interaction and Behavior	19	63	19
Management Psychology.	19	57	13
Human Aspect of Management . . .	18	77	29
Social and Cultural Trends and Their Impact on Business Management	13	32	19
Industrial Sociology	6	44	13
Impact of Consumer Behavior on Management	0	25	6

TABLE 13

COMMUNICATION
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	65	100	65
Effective Report Writing	53	94	53
Listening Skills	50	94	56
Effective Reading Skills	44	75	56
Conference Leadership.	41	76	35
Oral Presentation of Reports . .	38	88	50
Business Letter Writing.	31	81	44

TABLE 14

ECONOMICS
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	41	65	29
The Price Mechanism.	19	57	6
Fundamentals of Economics. . . .	13	69	25
Economics of Technology and Innovation	13	38	6
Economic Trends.	0	38	6
The Economic Systems of the United States.	0	19	0
International Economics.	0	13	0
Comparative Economic Systems . .	0	13	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	19	63	19
Review of Basic Mathematics. . .	17	50	56
Replacement Management	13	63	6
Matrix Algebra	13	44	13
Analytic Geometry.	13	32	13
Calculus of Finite Differences .	13	26	6
Applying Program Evaluation and Review Techniques (PERT) . . .	12	53	0
Statistical Procedures and Methods.	6	62	6
Inventory Management	6	44	13
Probability Theory	6	44	0
Linear Programming	6	31	6
Calculus of Infinite Series. . .	6	25	6
Statistical Decision Theory. . .	0	44	0
Waiting Lines.	0	19	0
Dynamic Programming.	0	13	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management	41	76	35
Data Systems and Processing. . .	33	77	33
Fundamentals of Programming for Computer Operations.	25	50	38
Mathematics for Digital Computers.	18	47	35

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management and Labor Relations .	50	80	30
In-plant Training.	30	80	60
Industrial Safety and Medical Services	30	80	40
Salary and Wage Administration .	30	70	10
Job Analysis and Job Evaluation Methods.	27	100	18
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	27	72	45
Employee Benefit Plans	22	55	11
Maintaining Efficient and Up-To-Date Personnel Records	10	60	20

TABLE 18

FINANCIAL MANAGEMENT
(N=8)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting.	40	60	20
New Developments in Equipment Replacement Policy	38	88	25
Budgets.	38	88	13
Fundamentals of Financial Reporting and Statement Analysis	29	72	14
Financial Planning and Forecasting.	13	51	13
Taxes.	0	43	14

TABLE 19

MANUFACTURING AND PRODUCTION
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Maintenance Planning and Control.	63	88	63
Automation	60	90	50
Engineering Economy.	45	81	36
Production Planning and Control Management	40	80	40
Materials Handling	30	60	40
Organization and Management of Purchasing Operations.	30	50	30
Quality Control.	22	66	33
Value Analysis	20	90	20
Inventory Management	10	60	50
Methods Analysis and Work Simplification	10	60	20

TABLE 20

MARKETING
(N=5)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	80	80	40
Marketing Management	25	50	0
Fundamentals of Marketing.	25	50	0
Fundamentals of Pricing.	25	25	0
Marketing Research	25	25	0
Packaging Design and Development	20	40	0
Physical Distribution Methods. .	0	25	0

TABLE 21

SALES MANAGEMENT
(N=4)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Training of Field Salesmen . . .	50	50	25
Motivating Salesmen.	50	50	0
Selection and Evaluation of Field Salesmen	50	50	0
Supervision of Field Salesmen. .	25	50	0
Compensation of Field Salesmen .	0	50	0

INTERNATIONAL MANAGEMENT
(N=3)

None of the middle managers indicated that they "Should Have" any of the ten courses listed, nor was there any need reported for these courses on the part of those supervised by middle management. One person indicated he "Could Use" each of four courses: Monetary Exchange Problems; International Law; Sources of Funds: Financing of Day-to-Day Transactions; and Appraising and Developing Foreign Markets.

TABLE 22

RESEARCH AND DEVELOPMENT
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
Evaluation of the Research and Development Programs	17	84
Supervision and Management of Research Services	17	67
Guidelines for Selecting and Appraising New Projects	14	85
Building Research and Development Teams	14	57
Planning Budgeting and Control of Projects	0	60

None of the managers reported a need for any of the five courses on the part of those they supervise.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-two percent (N=7) of the 22 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-five percent (N=21) had completed high school, 64 percent (N=14) had the bachelor's degree, and 14 percent (N=3) had the master's degree. No one had the doctorate. Nine percent (N=2) went to business school and 14 percent (N=3) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 23

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	4	1
Education	1	0
Engineering	5	1
Liberal Arts	1	0
Mineral Industries	2	0
Other (not specified)	1	1
Total	14	3

The major areas of work for the middle managers in Petroleum Refining are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	3	14
Engineering	6	24
Finance	1	5
Industrial Relations	2	9
Maintenance	1	5
Manufacturing	5	23
Marketing and Sales	1	5
Production Control — Records	1	5
Research and Development	1	5
Service (yard and labor personnel, etc.)	1	5
Total	22	100

Methods of Updating

Fifty-seven percent (N=12) of the middle managers would take a credit course and 67 percent (N=14) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. Two planned to enroll for the master's degree.

Sixty-four percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Job demands no more education	4	30
Don't have the time	3	21
Live too far from educational center	3	21
Not interested	2	14
Other (not specified)	2	14
Total	14	100

The variety of educational methods used by middle managers for updating within the past four years is shown in Table 27.

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=22)

	Number Managers	Percent Managers
Attendance at regional or national meetings of professional societies	9	41
Company in-service training courses	8	36
Workshops or seminars on managerial topics. .	6	27
Short refresher courses at colleges or universities.	5	23
Managerial development within company	4	18

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=20)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	75	20	5	0	0
Subordinate-superior discussions or meetings	47	32	11	5	5
In-plant reports and bulletins . . .	44	44	6	0	6
Scientific and technical journals. .	44	33	17	6	0
Technical books, reports, abstracts and indexes.	39	33	17	11	0
Business reports	31	32	32	0	5
Manufacturer's literature.	27	44	17	6	6
Use of consultants	24	12	24	40	0
Management journals.	16	52	16	5	11
Company in-service courses	13	19	13	25	30
Professional society meetings. . . .	12	29	29	24	6
Lectures, conferences, workshops and seminars	11	42	37	5	5
College and university evening courses.	6	6	13	56	19
College and university day courses .	0	0	0	87	13

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=22)

	Number Managers	Percent Managers
Programmed instruction.	10	45
Correspondence courses.	10	45
Educational television.	5	23
Courses recorded on tapes	1	5
Courses recorded on records	1	5
Two-way radio courses	1	5
Two-way telephone courses	1	5
Other (not specified)	2	9

Company Attitudes Toward Education

Of the 22 managers responding to a question on the attitude of their immediate superior toward continuing their education, 59 percent (N=13) said the superior encouraged them and 36 percent (N=8) said the superior was noncommittal. Five percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=20)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	81	0	0	19
Attend professional meetings	78	22	0	0
Enroll for advanced work .	67	0	0	33
Attend seminars or workshops away from the company.	64	18	6	12
Hold office in professional societies .	55	39	0	6
Write technical and professional papers. . .	42	29	0	29
Educational leave of absence.	5	0	0	95

Fifty percent of the middle managers indicated that they were employed by companies which provided in-service training; 50 percent were not. Thirty-seven percent said the training was entirely on company time, 25 percent said it was partly on company time, 13 percent said it was not on company time, and 25 percent did not know.

Fifty percent reported that their company had an educational assistance plan. Eighteen percent said it did not and 32 percent did not know. Twenty-one percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company as indicated by the 13 managers who responded to the question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	2
About 3/4	0
About 2/3	7
About 1/2	4
About 1/3	0
Less than 1/3	0
Don't know	0
Total	13

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	6
251 - 300	1
201 - 250	0
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know	6
Total	13

When asked about the effect of available company educational assistance in motivating them to undertake further education, eight percent of the middle managers said it had strongly encouraged them, 38 percent said it had partially influenced them, and 54 percent said it had no effect. There is an inconsistency here: while 46 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and two were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Petroleum Refining, 45 first-line supervisors from six companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 45 first-line supervisors in the category of Petroleum Refining were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job.	57
Safety.	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=44)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	25	57	38	87
The Tools and Techniques of Effective Supervision	20	48	37	88
Decision Making	16	38	32	76
Supervisor's Role in Employee Discipline	16	38	31	74
Supervisor's Role in Company Economics	15	36	33	79
Inter-Departmental Cooperation	15	35	33	77
Employee Training and Evaluation				
Safety	22	51	40	93
Employee Training	15	37	33	81
Evaluation of Employee Performance	15	36	32	76
The Supervisor and the Union				
Grievance Procedure and Arbitration	20	47	35	82
Labor Relations	16	38	27	64
Labor Relations Legislation	5	12	19	45
Developing Those We Supervise				
Leadership	21	49	37	86
Human Aspect of Management	19	44	34	79
Communications	16	38	30	71
Developing the Work Team	7	17	28	67

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Eighteen percent (N=8) of the first-line supervisors were 40 years of age or younger. Sixty percent (N=27) were high school graduates, 11 percent (N=5) had the bachelor's degree, and no one had the master's degree or the doctorate. Seven percent (N=3) had gone to business school and seven percent (N=3) to trade school. The major fields of study for the bachelor's degree are indicated at the top of page 22.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's
Business Administration	1
Engineering	3
Psychology	1
Total	5

Below is a listing of the major areas of work for the first-line supervisors in the Petroleum Refining industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	4	9
Engineering	2	5
Industrial Relations	1	2
Maintenance	9	21
Manufacturing	8	19
Production Control - Records	11	25
Service (yard and labor personnel, etc.)	3	7
Traffic and Transportation	2	5
Other (not specified)	3	7
Total	43	100

Methods of Updating

Twenty-nine percent (N=12) of the first-line supervisors would take a credit course and 64 percent (N=28) would take a non-credit course if they were offered locally.

No supervisors were currently enrolled and no one was planning to enroll in a degree program.

For the 37 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Not a high school graduate.	12	31
Live too far from educational center. .	11	30
Don't have the time	5	14
Cannot afford it.	3	8
Job demands no more education	1	3
Not interested.	1	3
Can do better on my own	1	3
Other (not specified)	3	8
Total.	37	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=45)

	Number Supervisors	Percent Supervisors
Workshops or seminars on managerial topics.	9	20
Attendance at regional or national meetings of professional societies. .	8	18
Company in-service training courses . .	7	16
Correspondence courses.	4	9
Managerial development within company .	3	7
High school courses to improve job performance	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=40)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	56	36	5	0	3
Subordinate-superior discussions or meetings	38	38	18	3	3
In-plant reports and bulletins	38	36	8	5	13
Manufacturer's literature	18	48	18	8	8
Technical books, reports, abstracts, and indexes	14	36	25	19	6
Scientific and technical journals	11	43	14	26	6
Lectures, conferences, workshops, and seminars	10	29	23	23	15
Business reports	8	37	13	42	0
Use of consultants	8	16	16	60	0
Professional society meetings	8	11	24	54	3
Management journals	5	39	16	16	24
Company in-service courses	3	22	6	36	33
College and university evening courses	0	3	3	72	22
College and university day courses	0	0	3	94	3

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=45)

	Number Supervisors	Percent Supervisors
Programmed instruction	18	40
Correspondence courses	15	33
Educational television	8	18
Courses recorded on tapes.	6	13
Courses recorded on records.	4	9
Two-way telephone courses.	1	2
Two-way radio courses.	1	2
Other (not specified).	2	4

Company Attitudes Toward Education

A total of 41 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-six percent (N=19) said the superior encouraged them; 51 percent (N=21) said he was noncommittal, and three percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=41)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	72	6	0	22
Attend professional meetings	54	20	0	26
Attend seminars or workshops away from the company.	52	5	0	43
Enroll for advanced work .	49	19	0	32
Hold office in professional societies .	46	24	3	27
Write technical and professional papers. . .	29	18	0	53
Educational leave of absence.	12	2	2	84

Twenty percent of the supervisors indicated that they were employed by companies which provided in-service training; 66 percent said their company did not provide it and 14 percent did not know. Thirty-one percent said the training was completely on company time, 18 percent said it was partly on company time, 18 percent said it was entirely on the men's own time, and 33 percent did not know.

Forty-four percent reported that their company had an educational assistance plan; 37 percent said it did not, and 19 percent did not know. Thirty-six percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 20 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	5
About 3/4	0
About 2/3	8
About 1/2	4
About 1/3	1
Less than 1/3	0
Don't know.	2
Total.	20

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300.	4
251 - 300	2
201 - 250	1
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know.	13
Total.	20

When asked what the effect of available financial assistance was on their motivation to undertake further education, 24 percent of the supervisors said it strongly encouraged them, 43 percent said it partially influenced them, and 33 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 67 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, none of the 45 respondents was actually enrolled and none planned to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PETROLEUM REFINING INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Petroleum Refining as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied a good deal. They were higher for top and middle management and those supervised by middle management, and lower for those supervised by top management and for first-line supervision.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Petroleum Refining N=14	Total Report N=705
Management Development	67	53
Human Aspect of Management	62	*
Impact of Science and Technology on Business Management	62	*
Effective Utilization of Manpower Resources and Allocation	58	*
Improving Decision Making of Managers	58	*
Effective Speaking	54	50
Management Reporting Systems	54	*
Performance Appraisal and Counseling Techniques	54	*
Communication in the Organization	50	59
Managerial Motivation	50	*
Working Effectively with Individuals and Groups	50	*
Effective Written Communications	*	50
Long-range Planning and Forecasting for Corporate Growth	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent Petroleum Refining N=14	 Total Report N=705
Management Development	58	56
Effective Written Communications	54	74
Impact of Science and Technology on Business Management	54	*
Communication in the Organization	50	65
Effective Speaking	*	67
Working Effectively with Individuals and Groups	*	66
Effective Reading Skills	*	62
Listening Skills	*	62
Performance Appraisal and Counseling Techniques	*	57
Human Aspect of Management	*	54
Improving Decision Making of Managers	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Petroleum Refining and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent Petroleum Refining N=22	 Total Report N=1,202
Working Efficiently with Individuals	67	65
Effective Communication in the Organization	65	64
Management Development	56	66
Supervisory Training and Employee Development	53	53
Effective Report Writing	53	*
Listening Skills	50	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Petroleum Refining N=22	Total Report N=1,202
Supervisory Training and Employee Development	67	61
Effective Communication in the Organization	65	56
Listening Skills	56	50
Effective Reading Skills	56	*
Management Development	56	*
Review of Basic Mathematics	56	*
Effective Report Writing	53	*
Working Efficiently with Individuals	50	62
Oral Presentation of Reports	50	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Petroleum Refining N=45	Total Report N=1,713
Fundamentals of the Supervisor's Job	57	64
Safety	51	*
Leadership	*	57
The Tools and Techniques of Effective Supervision	*	55
Decision Making	*	54
Human Aspect of Management	*	53
Communications	*	51

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an intregal part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN THE
PRIMARY METALS INDUSTRY
IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PRIMARY METALS INDUSTRY IN PENNSYLVANIA

M-73

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES 2

SUMMARY 2

- Top Management 2
- Middle Management 2
- First-Line Supervision 3

TOP MANAGEMENT 3

- Educational Needs Within Areas of Managerial Responsibility . . . 3

MIDDLE MANAGEMENT 8

- Educational Needs Within Areas of Managerial Responsibility . . . 8
- Background Information of Middle Managers 17
  - Personal, Educational and Professional Background 17
  - Methods of Updating 18
  - Company Attitudes Toward Education 20

FIRST-LINE SUPERVISION 22

- Educational Needs 22
- Background Information of First-Line Supervisors 23
  - Personal, Educational, and Professional Background 23
  - Methods of Updating 24
  - Company Attitudes Toward Education 27

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PRIMARY METALS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 29

- Top Management 29
- Middle Management 30
- First-Line Supervision 31

RECOMMENDATIONS 32

- For the University 32
- For Business and Industry 32
- For the Individual Manager and Supervisor 33
- For Professional Associations 33

LIST OF TABLES

PAGE

1. Top Management — General Management 5

2. Top Management — Behavioral Science and Management 5

3. Top Management — Communications Techniques 6

4. Top Management — Economics 6

5. Top Management — Quantitative Methods Applied to Business and Industry 6

6. Top Management — Industrial Relations and Personnel Management 7

7. Top Management — Financial Management 7

8. Top Management — Manufacturing and Production 7

9. Top Management — Marketing 8

10. Top Management — International Management 8

11. Middle Management — General Management 10

12. Middle Management — Behavioral Science and Management 10

13. Middle Management — Communication 11

14. Middle Management — Economics 11

15. Middle Management — Quantitative Methods Applied to Business and Industry 12

16. Middle Management — Computer Operations and Data Processing 12

17. Middle Management — Industrial Relations and Personnel Management 13

18. Middle Management — Financial Management 14

19. Middle Management — Manufacturing and Production 14

20. Middle Management — Marketing 15

21. Middle Management — Sales Management 15

22. Middle Management — International Management 16

PAGE

23. Middle Management — Research and Development. 16

24. Middle Management — Major Fields of Study of College Graduates. 17

25. Middle Management — Major Areas of Work 17

26. Middle Management — Reasons for Not Undertaking Additional Formal Education 18

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 18

28. Middle Management — Sources of Information Used in Updating . . 19

29. Middle Management — Preference for Media of Course Presentation 20

30. Managers' Perception of Company Policy Toward Professional Development. 20

31. Middle Management — Proportion of Tuition Paid. 21

32. Middle Management — Maximum Amount of Tuition Paid Per Year . . 21

33. First-Line Supervision Training Needs. 23

34. First-Line Supervision — Major Fields of Study of College Graduates. 24

35. First-Line Supervision — Major Areas of Work 24

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 25

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 25

38. First-Line Supervision — Sources of Information Used in Updating 26

39. First-Line Supervision — Preference for Media of Course Presentation 27

40. Supervisors' Perception of Company Policy Toward Professional Development. 27

41. First-Line Supervision — Proportion of Tuition Paid 28

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 28

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PRIMARY METALS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 221 managers and supervisors from 13 companies in the Primary Metals industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, nine were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 14 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for ten of 54 listed courses, in the areas of general management, behavioral science and management, and communication. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need three of the listed courses. (Page 9)

The educational level was high, with 48 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 17-20)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for seven out of 16 courses. (Page 22)

Nine percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-27)

TOP MANAGEMENT

In the industrial category of Primary Metals, 55 top managers from 13 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	67
Effective Written Communications	55
Human Aspect of Management	54
Industrial Organization and Administration	52
Managerial Motivation	52
Effective Reading Skills	52
Effective Speaking	51
Working Effectively with Individuals and Groups	51
Planning and Utilization of Physical Facilities	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Speaking	83
Effective Written Communications	81
Working Effectively with Individuals and Groups	78
Communication in the Organization	73
Effective Reading Skills	71
Listening Skills	71
Performance Appraisal and Counseling Techniques	67
Creativity and Innovation	65
Management Development	61
Human Aspect of Management	60
Industrial Organization and Administration	59
Management Reporting Systems	59
Operations Planning and Control	53
Managerial Motivation	52

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=54)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Industrial Organization and Administration	52	87	59
Management Reporting Systems .	49	84	59
Long-range Planning and Forecasting for Corporate Growth	49	82	16
Overall Strategy and Goals . .	49	75	40
Improving Decision Making of Managers	46	88	46
Policy Formation	40	89	23
Managing Major Change in Organizations	31	76	29
Effective Utilization of Manpower Resources and Allocation	31	71	31
Impact of Computer Technology.	25	67	23
Management of Research and Development.	23	52	25
Impact of Science and Technology on Business Management.	19	69	23
Ethical Considerations in Business	14	53	20
Impact of Government Legislation and Controls on Business	12	50	13
Impact of Multinational Aspects of Planning and Control	4	20	6

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=51)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	67	91	73
Human Aspect of Management . .	54	84	60
Managerial Motivation.	52	90	52
Working Effectively with Individuals and Groups	51	86	78
Creativity and Innovation. . .	33	79	65
Political, Social,and Cultural Trends and Their Impact on Business Management.	6	36	19

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=53)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	55	85	81
Effective Reading Skills . . .	52	89	71
Effective Speaking	51	83	83
Listening Skills	46	81	71

TABLE 4

ECONOMICS
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	22	59	16
Comparative Economic Systems .	13	36	17

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=48)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. .	22	57	33
Survey Course on Quantitative Methods.	15	59	23

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=52)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	45	94	61
Incentives	44	88	40
Performance Appraisal and Counseling Techniques	42	88	67
Criteria and Selection of Personnel	40	74	48
Personnel Policy Affecting Wage and Salary Structure	37	72	27
Personnel Policy Affecting Labor-Management Relations	33	71	40
Personnel Policy Affecting Employment Practices	23	63	36

TABLE 7

FINANCIAL MANAGEMENT
(N=50)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Capital Budgeting	46	68	30
Managerial Accounting and Budgeting	45	86	29
Fundamentals of Financial Reporting and Statement Analysis	43	71	23
Financial Planning and Forecasting	24	72	15

TABLE 8

MANUFACTURING AND PRODUCTION
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities	51	72	47
Operations Planning and Control	41	68	53
Operations Research Applied to Production	15	52	35

TABLE 9

MARKETING
(N=50)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	30	60	32
Pricing	26	60	26
Marketing Research	22	51	20
Logistics Planning	15	36	11

TABLE 10

INTERNATIONAL MANAGEMENT
(N=47)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. .	4	34	6
International Economic Analysis	0	24	2

MIDDLE MANAGEMENT

In the industrial category of Primary Metals, 79 middle managers from 13 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," and "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Effective Communication in the Organization	80
Working Efficiently with Individuals	70
Management Development	67
Supervisory Training and Employee Development	55
Listening Skills	55
Oral Presentation of Reports	54
Effective Reading Skills	54
Creativity and Innovation	52
Effective Report Writing	51
Business Letter Writing	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Communication in the Organization	57
Supervisory Training and Employee Development	55
Working Efficiently with Individuals	51

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Primary Metals industry.

TABLE 11

GENERAL MANAGEMENT
(N=73)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals.	70	95	51
Management Development	67	97	37
Supervisory Training and Employee Development	55	89	55
Performance Appraisal and Counseling Techniques. . . .	49	87	36
Criteria and Selection of Personnel for Promotion. . .	46	82	29
Effective Utilization of Manpower Resources and Allocation	38	70	31
Analyzing Organizational Behavior	36	75	17
Principles and Analysis of Office Systems	29	59	6
Impact of Science and Technology on Business Management	27	71	26
Long-range Planning and Forecasting for Corporate Growth	26	61	9
The Application of Information Technology on Decision Making	23	49	15
Impact of Computer Technology.	21	49	12
Impact of Government Legislation and Controls on Business	21	45	7

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . .	52	82	34
Human Aspect of Management . .	46	85	31
Understanding Group Interaction and Behavior.	43	75	39
Management Psychology.	38	77	20
Industrial Sociology	26	58	19
Impact of Consumer Behavior on Management	10	35	6
Social and Cultural Trends and Their Impact on Business Management	9	37	10

TABLE 13

COMMUNICATION
(N=74)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	80	98	57
Listening Skills	55	87	42
Effective Reading Skills . . .	54	83	40
Oral Presentation of Reports .	54	82	48
Effective Report Writing . . .	51	83	46
Business Letter Writing . . .	50	80	44
Conference Leadership	47	83	25

TABLE 14

ECONOMICS
(N=69)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	38	83	30
The Price Mechanism.	19	68	13
Fundamentals of Economics. . .	15	44	21
The Economic Systems of the United States.	12	38	11
Economic Trends.	10	52	9
Economics of Technology and Innovation	9	40	10
Comparative Economic Systems .	8	29	12
International Economics. . . .	4	20	4

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=68)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers.	38	78	18
Replacement Management	35	67	21
Inventory Management	33	57	18
Statistical Decision Theory. .	32	66	10
Statistical Procedures and Methods.	24	58	24
Review of Basic Mathematics. .	24	45	31
Applying Program Evaluation and Review Techniques (PERT)	21	49	10
Linear Programming	18	34	9
Probability Theory	16	41	15
Dynamic Programming.	14	34	8
Analytic Geometry.	12	21	18
Matrix Algebra	11	17	6
Waiting Lines.	9	27	5
Calculus of Infinite Series. .	8	22	12
Calculus of Finite Differences	5	20	11

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=64)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing .	33	56	13
Applying the Computer to Problems of Business and Management	28	51	13
Fundamentals of Programming for Computer Operations. . .	23	48	11
Mathematics for Digital Computers.	16	31	13

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT (N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
In-plant Training.	54	73	38
Industrial Safety and Medical Services	50	55	9
Salary and Wage Administration	48	67	0
Management and Labor Relations	45	59	14
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	40	64	16
Maintaining Efficient and Up-To-Date Personnel Records. .	40	55	5
Job Analysis and Job Evaluation Methods	38	80	21
Employee Benefit Plans	37	48	11

TABLE 18

FINANCIAL MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	50	50	28
Managerial Accounting.	31	50	6
Fundamentals of Financial Reporting and Statement Analysis	31	37	19
New Developments in Equipment Replacement Policy	29	58	18
Financial Planning and Forecasting.	25	44	13
Taxes.	15	38	15

TABLE 19

MANUFACTURING AND PRODUCTION
(N=52)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Value Analysis	56	80	36
Quality Control.	56	76	38
Maintenance Planning and Control.	53	69	37
Engineering Economy.	48	78	30
Automation	48	74	26
Methods Analysis and Work Simplification	47	74	39
Materials Handling	46	77	38
Production Planning and Control Management	46	71	27
Inventory Management	34	62	19
Organization and Management of Purchasing Operations. . . .	28	56	15

TABLE 20

MARKETING
(N=20)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Management	25	55	10
Product Planning	21	68	11
Application of Management Science and Computers to Marketing Problems	16	37	5
Marketing Research	15	50	5
Fundamentals of Marketing. . .	11	64	11
Fundamentals of Pricing. . . .	11	50	11
Physical Distribution Methods.	11	37	5
Brand Marketing.	5	16	11
Packaging Design and Development.	0	11	11

TABLE 21

SALES MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Training of Field Salesmen . .	22	55	6
Selection and Evaluation of Field Salesmen	22	44	6
Supervision of Field Salesmen.	17	56	6
Compensation of Field Salesmen	17	50	6
Motivating Salesmen.	16	58	5

TABLE 22

INTERNATIONAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Monetary Exchange Problems	8	8	15
International Understanding	0	8	8
Commercial Policy and Trade Control	0	8	8
International Law	0	8	8
Sources of Funds: Financing of Day-to-Day Transactions	0	8	8
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	0	0	8
United States Foreign Economic Policy	0	0	8
International Economic Analysis	0	0	8
Appraising and Developing Foreign Markets	0	0	8

TABLE 23

RESEARCH AND DEVELOPMENT
(N=20)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Guidelines for Selecting and Appraising New Projects	30	40	20
Planning Budgeting and Control of Projects	26	31	16
Evaluation of the Research and Development Programs	22	39	17
Supervision and Management of Research Services	11	37	21
Building Research and Development Teams	11	32	21

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-four percent (N=26) of the 79 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-one percent (N=72) had completed high school, 48 percent (N=38) had the bachelor's degree, and four percent (N=3) had the master's degree. No one had the doctorate. Four percent (N=3) went to business school and ten percent (N=8) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	6	1
Education	2	1
Engineering	21	1
Liberal Arts.	5	0
Mineral Industries.	2	0
Psychology.	1	0
Other (not specified)	1	0
Total.	38	3

The major areas of work for the middle managers in the Primary Metals industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration.	16	21
Engineering	15	19
Finance	4	5
Industrial Relations.	4	5
Maintenance	5	6
Manufacturing	20	26
Marketing and Sales	9	12
Production Control — Records	4	5
Other (not specified)	1	1
Total.	78	100

Methods of Updating

Sixty-five percent (N=51) of the middle managers would take a credit course and 81 percent (N=63) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree. Six managers planned to enroll: two for the associate degree, three for the master's, and one for the doctorate. Of the eight who were enrolled or planned to enroll, the major fields of study were three in business administration, two in engineering, and one in another field which was not specified.

Seventy-five percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	22	37
Live too far from educational center. . . .	8	14
Not interested.	7	12
Job demands no more education	3	5
Cannot afford it.	3	5
Can do better on my own	3	5
Not a high school graduate.	3	5
Other (not specified)	10	17
Total.	59	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=79)

	Number Managers	Percent Managers
Attendance at regional or national meetings of professional societies.	39	49
Workshops or seminars on managerial topics . .	29	37
Company in-service training courses.	23	29
Managerial development within company.	21	27
Short refresher courses at colleges or universities	9	11
Correspondence courses	7	9
Television courses	6	8
Workshops or seminars in liberal arts or humanities.	3	4

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=78)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	74	24	1	0	1
In-plant reports and bulletins . .	58	31	0	7	4
Subordinate-superior discussions or meetings.	58	31	6	1	4
Manufacturer's literature.	44	37	10	8	1
Management journals.	37	46	9	5	3
Technical books, reports, abstracts, and indexes	34	30	26	9	1
Scientific and technical journals	32	46	17	4	1
Business reports	27	47	15	8	3
Lectures, conferences, workshops, and seminars.	21	27	23	13	16
Professional society meetings. . .	17	45	21	13	4
Company in-service courses	17	19	19	21	38
Use of consultants	4	21	33	36	6
College and university evening courses.	1	6	6	56	31
College and university day courses.	0	3	3	84	10

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=79)

	Number Managers	Percent Managers
Correspondence courses	41	52
Programmed instruction	34	43
Educational television	29	37
Courses recorded on tapes.	10	13
Cousses recorded on records.	9	11
Two-way radio courses.	7	9
Two-way telephone courses.	5	6
Other (not specified).	6	8

Company Attitudes Toward Education

Of the 76 managers responding to a question on the attitude of their immediate superior toward continuing their education, 42 percent (N=32) said the superior encouraged them and 55 percent (N=42) said the superior was noncommittal. Three percent (N=2) said the superior discouraged them.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities, as noted below:

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=73)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	82	3	1	14
Attend professional meetings.	81	14	1	4
Hold office in professional societies.	67	23	0	10
Attend seminars and workshops away from the company	64	21	1	14
Write technical and professional papers. . . .	55	25	1	19
Enroll for advanced work.	53	22	3	22
Educational leave of absence	4	14	21	61

Forty-five percent of the middle managers indicated that they were employed by companies which provided in-service training; 50 percent were not, and five percent did not know. Forty-two percent said the training was entirely on company time, 30 percent said it was partly on company time, ten percent said it was not on company time, and 18 percent did not know.

Sixty-five percent reported that their company had an educational assistance plan. Twenty-two percent said it did not and 13 percent did not know. Sixty-two percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company,as indicated by the 47 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	9
About 3/4	5
About 2/3	5
About 1/2	20
About 1/3	1
Less than 1/3	1
Don't know	6
Total	47

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	11
251 - 300	2
201 - 250	0
151 - 200	2
101 - 150	2
51 - 100	3
50 or less	0
Don't know	26
Total	46

When asked about the effect of available company educational assistance in motivating them to undertake further education, 26 percent of the middle managers said it had strongly encouraged them, 23 percent said it had partially influenced them, and 51 percent said it had no effect. There is an inconsistency here: while 49 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and six were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Primary Metals, 87 first-line supervisors from 13 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 87 first-line supervisors in the category of Primary Metals were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job	70
Leadership	63
Communications	57
Inter-Departmental Cooperation	54
Decision Making	54
Human Aspect of Management	53
The Tools and Techniques of Effective Supervision	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=87)

	"Should Have" No.	"Should Have" %	"Should Have" and "Could Use" No.	"Should Have" and "Could Use" %
Principles of Supervision				
Fundamentals of the Supervisor's Job. . .	61	70	79	91
Decision Making.	46	54	74	87
Inter-Departmental Cooperation	45	54	71	85
The Tools and Techniques of Effective Supervision	43	51	69	82
Supervisor's Role in Employee Discipline	39	47	69	83
Supervisor's Role in Company Economics .	37	45	68	82
Employee Training and Evaluation				
Evaluation of Employee Performance . . .	36	43	67	80
Safety	35	42	68	81
Employee Training.	23	27	61	72
The Supervisor and the Union				
Grievance Procedure and Arbitration . .	31	37	64	77
Labor Relations.	25	30	59	71
Labor Relations Legislation.	12	15	39	48
Developing Those We Supervise				
Leadership	53	63	73	87
Communications	48	57	73	87
Human Aspect of Management	45	53	76	89
Developing the Work Team	30	35	67	79

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty percent (N=35) of the first-line supervisors were 40 years of age or younger. Seventy-six percent (N=65) were high school graduates, nine percent (N=8) had the bachelor's degree, and no one had the master's degree or the doctorate. Ten percent (N=9) had gone to business school and 13 percent (N=11) to trade school. The major fields of study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's
Architecture	1
Business Administration	1
Education	1
Engineering	4
Mineral Industries	1
Total	8

Below is a listing of the major areas of work for the first-line supervisors in the Primary Metals industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	6	7
Engineering	8	10
Finance	1	1
Industrial Relations	1	1
Maintenance	9	11
Manufacturing	33	39
Marketing and Sales	2	2
Production Control -- Records	9	11
Purchasing and Procurement	2	2
Service (yard and labor personnel,etc.)	7	8
Traffic and Transportation	3	4
Other (not specified)	3	4
Total	84	100

Methods of Updating

Fifty-seven percent (N=49) of the first-line supervisors would take a credit course and 81 percent (N=70) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for the bachelor's degree. Six planned to enroll: two for the associate degree, three for the bachelor's, and one for the master's. The major fields of study were: six in business administration, one in education, one in engineering, one in law, and one in another field which was not specified.

For the 68 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time.	22	33
Cannot afford it	13	19
Live too far from educational center .	8	12
Not a high school graduate	7	10
Job demands no more education.	3	4
Not interested	2	3
Can do better on my own.	1	1
Other (not specified).	12	18
Total	68	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=87)

	Number Supervisors	Percent Supervisors
Managerial development within company . .	23	26
Company in-service training courses . . .	22	25
Workshops or seminars on managerial topics	18	21
Correspondence courses.	18	21
Attendance at regional or national meetings of professional societies. . .	15	17
Television courses.	6	7
High school courses to improve job performance	2	2
Short refresher courses at colleges or universities	1	1

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING (N=80)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	53	41	4	1	1
In-plant reports and bulletins	49	39	5	1	6
Subordinate-superior discussions or meetings	48	41	4	4	3
Manufacturer's literature	26	41	15	9	9
Management journals	22	38	13	13	14
Use of consultants	15	21	13	45	6
Scientific and technical journals	14	35	22	21	8
Technical books, reports, abstracts, and indexes	11	42	21	15	11
Lectures, conferences, workshops, and seminars	11	27	26	19	17
Professional society meetings	8	14	19	55	4
Company in-service courses	8	11	15	21	45
Business reports	5	37	30	20	8
College and university evening courses	1	4	7	66	22
College and university day courses	0	1	4	84	11

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=87)

	Number Supervisors	Percent Supervisors
Correspondence courses	52	60
Programmed instruction	47	54
Educational television	28	32
Courses recorded on tapes.	15	17
Courses recorded on records.	14	16
Two-way radio courses.	4	5
Two-way telephone courses.	1	1
Other (not specified).	3	3

Company Attitudes Toward Education

A total of 81 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-seven percent (N=38) said the superior encouraged them; 53 percent (N=43) said he was noncommittal, and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=82)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	77	5	0	18
Attend professional meetings	67	6	0	27
Enroll for advanced work	60	10	1	29
Hold office in professional societies. .	49	11	0	40
Attend seminars or workshops away from the company.	43	10	0	47
Write technical and professional papers . . .	38	7	0	55
Educational leave of absence.	4	4	5	87

Thirty-one percent of the supervisors indicated that they were employed by companies which provided in-service training; 57 percent said their company did not provide it and 12 percent did not know. Twenty-nine percent said the training was completely on company time, 35 percent said it was partly on company time, two percent said it was entirely on the men's own time, and 34 percent did not know.

Forty-four percent reported that their company had an educational assistance plan; 36 percent said it did not, and 20 percent did not know. Forty-three percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 33 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	5
About 3/4	3
About 2/3	0
About 1/2	9
About 1/3	0
Less than 1/3	0
Don't know	16
Total	33

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	3
251 - 300	0
201 - 250	0
151 - 200	1
101 - 150	0
51 - 100	0
50 or less	0
Don't know	27
Total	31

When asked what the effect of available financial assistance was on their motivation to undertake further education, 29 percent of the supervisors said it strongly encouraged them, 42 percent said it partially influenced them, and 29 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 71 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 87 respondents were actually enrolled and six were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PRIMARY METALS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Primary Metals as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were relatively higher and more numerous, except for those supervised by middle management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Primary Metals N=55	Total Report N=705
Communication in the Organization.	67	59
Effective Written Communications	55	50
Human Aspect of Management	54	*
Industrial Organization and Administration	52	*
Managerial Motivation.	52	*
Effective Reading Skills	52	*
Effective Speaking	51	50
Working Effectively with Individuals and Groups. . .	51	*
Planning and Utilization of Physical Facilities. . .	51	*
Management Development	*	53
Long-range Planning and Forecasting for Corporate Growth	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Primary Metals N=55	Total Report N=705
Effective Speaking	83	67
Effective Written Communications	81	74
Working Effectively with Individuals and Groups	78	66
Communication in the Organization	73	65
Effective Reading Skills	71	62
Listening Skills	71	62
Performance Appraisal and Counseling Techniques	67	57
Creativity and Innovation	65	*
Management Development	61	56
Human Aspect of Management	60	54
Management Reporting Systems	59	*
Industrial Organization and Administration	59	*
Operations Planning and Control	53	*
Managerial Motivation	52	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Primary Metals and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Primary Metals N=79	Total Report N=1,202
Effective Communication in the Organization	80	64
Working Efficiently with Individuals	70	65
Management Development	67	66
Supervisory Training and Employee Development	55	53
Listening Skills	55	*
Oral Presentation of Reports	54	*
Effective Reading Skills	54	*
Creativity and Innovation	52	*
Effective Report Writing	51	*
Business Letter Writing	50	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Primary Metals N=79	Total Report N=1,202
Effective Communication in the Organization . . .	57	56
Supervisory Training and Employee Development. . .	55	61
Working Efficiently with Individuals	51	62
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Primary Metals N=87	Total Report N=1,713
Fundamentals of the Supervisor's Job	70	64
Leadership	63	57
Communications	57	51
Decision Making.	54	54
Inter-Departmental Cooperation	54	*
Human Aspect of Management	53	53
The Tools and Techniques of Effective Supervision.	51	55

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership — was strong for all three level of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS INDUSTRY IN PENNSYLVANIA

M-74

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

  Top Management. 2
  Middle Management 2
  First-Line Supervision. 3

TOP MANAGEMENT 3

  Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 7

  Educational Needs Within Areas of Managerial Responsibility 7
  Background Information of Middle Managers 15

    Personal, Educational, and Professional Background 15
    Methods of Updating. 16
    Company Attitudes Toward Education 18

FIRST-LINE SUPERVISION 20

  Educational Needs 20
  Background Information of First-Line Supervisors. 21

    Personal, Educational, and Professional Background 21
    Methods of Updating. 23
    Company Attitudes Toward Education 25

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PROFESSIONAL, SCIENTIFIC AND CONTROLLING INSTRUMENTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT. 27

  Top Management. 27
  Middle Management 28
  First-Line Supervision. 29

RECOMMENDATIONS. 30

  For the University. 30
  For Business and Industry 30
  For the Individual Manager and Supervisor 31
  For Professional Associations 31

LIST OF TABLES

PAGE

1. Top Management — General Management 4

2. Top Management — Behavioral Science and Management. 4

3. Top Management — Communications Techniques. 5

4. Top Management — Economics. 5

5. Top Management — Quantitative Methods Applied to Business and Industry 5

6. Top Management — Industrial Relations and Personnel Management 6

7. Top Management — Financial Management 6

8. Top Management — Manufacturing and Production 6

9. Top Management — Marketing. 7

10. Top Management — International Management 7

11. Middle Management — General Management. 8

12. Middle Management — Behavioral Science and Management 9

13. Middle Management — Communication 9

14. Middle Management — Economics 10

15. Middle Management — Quantitative Methods Applied to Business and Industry 10

16. Middle Management — Computer Operations and Data Processing 11

17. Middle Management — Industrial Relations and Personnel Management 11

18. Middle Management — Financial Management. 12

19. Middle Management — Manufacturing and Production. 12

20. Middle Management — Marketing 13

21. Middle Management — Sales Management. 13

22. Middle Management — International Management. 14

PAGE

23. Middle Management – Research and Development 14

24. Middle Management — Major Fields of Study of College Graduates. 15

25. Middle Management — Major Areas of Work 15

26. Middle Management — Reasons for Not Undertaking Additional Formal Education 16

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 16

28. Middle Management — Sources of Information Used in Updating . . 17

29. Middle Management — Preference for Media of Course Presentation 18

30. Managers' Perception of Company Policy Toward Professional Development. 18

31. Middle Management — Proportion of Tuition Paid. 19

32. Middle Management — Maximum Amount of Tuition Paid Per Year . . 19

33. First-Line Supervision Training Needs. 21

34. First-Line Supervision — Major Fields of Study of College Graduates. 22

35. First-Line Supervision — Major Areas of Work. 22

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 23

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 23

38. First-Line Supervision — Sources of Information Used in Updating 24

39. First-Line Supervision — Preference for Media of Course Presentation 25

40. Supervisors' Perception of Company Policy Toward Professional Development. 25

41. First-Line Supervision — Proportion of Tuition Paid 26

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 26

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 127 managers and supervisors from seven companies in the Professional, Scientific, and Controlling Instruments industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed three were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said four courses were needed. (Page 3)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management, behavioral science and management, and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need only one of the listed courses. (Page 8)

The educational level was very high, with 76 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in this study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for two of 16 courses. (Page 20)

Fourteen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Professional, Scientific, and Controlling Instruments, 12 top managers from seven companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management	(14 subjects)
Behavioral Science and Management	(6 subjects)
Communications Techniques	(4 subjects)
Economics	(2 subjects)
Quantitative Methods Applied to Business and Industry	(2 subjects)
Industrial Relations and Personnel Management	(7 subjects)
Financial Management	(4 subjects)
Manufacturing and Production	(3 subjects)
Marketing	(4 subjects)
International Management	(2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Product Planning.	58
Effective Reading Skills.	58
Improving Decision Making of Managers	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications.	58
Working Effectively with Individuals and Groups . .	55
Creativity and Innovation	55
Management Development.	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	50	67	33
Industrial Organization and Administration	45	81	36
Impact of Computer Technology. .	42	67	8
Management of Research and Development.	40	50	40
Long-range Planning and Forecasting for Corporate Growth .	33	75	25
Effective Utilization of Manpower Resources and Allocation	33	58	17
Policy Formation	25	75	42
Management Reporting Systems . .	25	75	33
Overall Strategy and Goals . . .	25	75	8
Ethical Considerations in Business	25	58	17
Impact of Government Legislation and Controls on Business . . .	25	50	25
Impact of Science and Technology on Business Management	17	67	25
Managing Major Change in Organizations.	17	42	17
Impact of Multinational Aspects of Planning and Control. . . .	17	34	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	42	67	33
Creativity and Innovation. . . .	36	81	55
Working Effectively with Individuals and Groups	36	72	55
Managerial Motivation.	33	66	8
Human Aspect of Management . . .	33	50	25
Political, Social, and Cultural Trends and Their Impact on Business Management.	9	18	0

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Reading Skills	58	91	42
Effective Written Communications	33	66	58
Listening Skills	25	58	33
Effective Speaking	17	59	33

TABLE 4

ECONOMICS
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	25	50	8
Comparative Economic Systems . .	17	25	0

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods.	33	58	25
Statistical Decision Theory. . .	17	59	17

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Incentives	42	75	0
Personnel Policy Affecting Wage and Salary Structure	42	67	25
Management Development	33	66	50
Performance Appraisal and Counseling Techniques.	33	66	42
Criteria and Selection of Personnel.	25	50	25
Personnel Policy Affecting Employment Practices	18	54	36
Personnel Policy Affecting Labor-Management Relations . .	18	54	27

TABLE 7

FINANCIAL MANAGEMENT
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Financial Planning and Forecasting.	36	72	9
Fundamentals of Financial Reporting and Statement Analysis	27	54	36
Capital Budgeting.	27	54	18
Managerial Accounting and Budgeting.	18	82	45

TABLE 8

MANUFACTURING AND PRODUCTION
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Operations Planning and Control.	36	63	27
Planning and Utilization of Physical Facilities.	36	63	18
Operations Research Applied to Production	18	36	27

TABLE 9

MARKETING
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	58	91	25
Pricing.	33	66	25
Marketing Research	25	67	0
Logistics Planning	0	25	0

TABLE 10

INTERNATIONAL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	0	33	8
International Economic Analysis.	0	25	0

MIDDLE MANAGEMENT

In the industrial category of Professional, Scientific, and Controlling Instruments, 46 middle managers from seven companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	77
Effective Communication in the Organization	73
Creativity and Innovation	67
Working Efficiently with Individuals	60
Oral Presentation of Reports	55
Performance Appraisal and Counseling Techniques	51

The only course which 50 percent or more of the middle managers thought those they supervise needed was Effective Communication in the Organization at 52 percent.

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Professional, Scientific, and Controlling Instruments category.

TABLE 11

GENERAL MANAGEMENT
(N=45)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinate' Needs" Percent
Management Development	77	96	33
Working Efficiently with Individuals	60	100	49
Performance Appraisal and Counseling Techniques	51	81	30
Supervisory Training and Employee Development	45	83	45
Criteria and Selection of Personnel for Promotion	45	74	33
Effective Utilization of Manpower Resources and Allocation	36	65	27
Analyzing Organizational Behavior	34	70	27
Long-range Planning and Forecasting for Corporate Growth	32	64	16
Impact of Science and Technology on Business Management	29	79	17
The Application of Information Technology on Decision Making	24	62	17
Impact of Computer Technology	23	65	23
Principles and Analysis of Office Systems	19	56	21
Impact of Government Legislation and Controls on Business	18	52	14

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=43)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation	67	91	40
Human Aspect of Management	40	77	28
Management Psychology	30	74	16
Understanding Group Interaction and Behavior	26	74	19
Industrial Sociology	9	51	14
Social and Cultural Trends and Their Impact on Business Management	7	31	12
Impact of Consumer Behavior on Management	5	26	10

TABLE 13

COMMUNICATION
(N=45)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	73	96	52
Oral Presentation of Reports	55	82	41
Conference Leadership	47	84	16
Effective Reading Skills	44	81	42
Listening Skills	42	77	37
Effective Report Writing	38	78	40
Business Letter Writing	30	71	41

TABLE 14

ECONOMICS
(N=43)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
The Price Mechanism.	40	66	16
Economics of Production and Cost	37	77	19
Fundamentals of Economics. . . .	19	52	28
Economics of Technology and Innovation	14	51	5
The Economic Systems of the United States.	12	47	14
Economic Trends.	9	46	9
Comparative Economic Systems . .	7	33	9
International Economics.	7	28	5

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=43)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	49	79	14
Applying Program Evaluation and Review Techniques (PERT) . . .	38	81	29
Statistical Procedures and Methods.	38	76	19
Statistical Decision Theory. . .	24	64	7
Inventory Management	23	53	14
Replacement Management	21	54	19
Probability Theory	21	43	12
Matrix Algebra	17	43	17
Review of Basic Mathematics. . .	17	29	26
Calculus of Finite Differences .	16	39	12
Linear Programming	14	43	12
Calculus of Infinite Series. . .	14	28	14
Waiting Lines.	12	31	7
Dynamic Programming.	10	39	10
Analytic Geometry.	5	20	7

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=43)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management	33	56	23
Data Systems and Processing. . .	23	60	21
Mathematics of Digital Computers	15	48	18
Fundamentals of Programming for Computer Operations.	14	59	21

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Job Analysis and Job Evaluation Methods.	54	92	15
Management and Labor Relations .	54	85	15
Employee Benefit Plans	42	67	8
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	36	86	21
In-plant Training.	31	69	31
Salary and Wage Administration .	29	72	7
Maintaining Efficient and Up-To-Date Personnel Records	15	53	15
Industrial Safety and Medical Services	8	70	38

TABLE 18

FINANCIAL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	64	91	18
Managerial Accounting	55	73	27
Budgets	50	75	25
Taxes	40	80	40
New Developments in Equipment Replacement Policy	40	80	30
Financial Planning and Forecasting	36	63	9

TABLE 19

MANUFACTURING AND PRODUCTION
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Automation	69	88	38
Methods Analysis and Work Simplification	56	87	44
Value Analysis	50	88	38
Materials Handling	50	81	50
Maintenance Planning and Control	50	75	31
Engineering Economy	44	83	28
Organization and Management of Purchasing Operations	41	88	29
Quality Control	39	78	22
Production Planning and Control Management	31	94	38
Inventory Management	29	82	24

TABLE 20

MARKETING
(N=13)

	"Should Have"	"Should Have" and "Could Use"	"Subordinates' Needs"
Product Planning	54	77	15
Fundamentals of Pricing.	46	77	23
Marketing Management	46	69	15
Fundamentals of Marketing. . . .	38	76	15
Marketing Research	31	77	15
Physical Distribution Methods. .	31	54	23
Brand Marketing.	15	38	8
Packaging Design and Development	8	46	8
Application of Management Science and Computers to Marketing Problems	8	31	15

TABLE 21

SALES MANAGEMENT
(N=9)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Selection and Evaluation of Field Salesmen	44	55	11
Training of Field Salesmen . . .	33	55	11
Motivating Salesmen.	22	55	11
Supervision of Field Salesmen. .	22	44	11
Compensation of Field Salesmen .	22	44	11

TABLE 22

INTERNATIONAL MANAGEMENT
(N=9)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
Appraising and Developing Foreign Markets. . . .	33	44
International Law.	22	55
Monetary Exchange Problems	22	44
International Economic Organizations	22	44
International Understanding.	11	44
United States Foreign Economic Policy.	11	44
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	11	33
Commercial Policy and Trade Control.	11	22
Sources of Funds: Financing of Day-to-Day Transactions	11	22
International Economic Analysis.	11	11

None of the middle managers thought their subordinates needed any of the courses in International Management.

TABLE 23

RESEARCH AND DEVELOPMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Guidelines for Selecting and Appraising New Projects. . . .	35	64	18
Planning Budgeting and Control of Projects.	33	77	22
Evaluation of the Research and Development Programs	33	61	17
Building Research and Development Teams.	27	54	13
Supervision and Management of Research Services.	24	71	12

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=19) of the 46 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-one percent (N=42) had completed high school, 76 percent (N=35) had the bachelor's degree, and 17 percent (N=8) had the master's degree. No one had the doctorate. Two percent (N=1) went to business school and nine percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	8	2
Engineering	18	2
Liberal Arts.	6	0
Psychology.	2	1
Other (not specified)	1	3
Total.	35	8

The major areas of work for the middle managers in the Professional, Scientific, and Controlling Instruments industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration.	6	13
Engineering	8	17
Finance	4	9
Industrial Relations.	4	9
Maintenance	1	2
Manufacturing	6	13
Marketing and Sales	6	13
Production Control — Records	1	2
Purchasing and Procurement.	1	2
Research and Development.	6	13
Other (not specified)	3	7
Total.	46	100

Methods of Updating

Sixty-four percent (N=28) of the middle managers would take a credit course and 67 percent (N=31) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree. Six were planning to enroll: two for the associate degree, three for the master's degree, and one for the doctorate. The major fields of study were: three in business administration, two in engineering, and one in another field which was not specified.

Sixty-seven percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	10	32
Live too far from educational center	7	23
Cannot afford it	3	10
Not interested	3	10
Job demands no more education	2	6
Can do better on my own	1	3
Not a high school graduate	1	3
Other (not specified)	4	13
Total	31	100

Middle managers had used a variety of educational methods for updating within the past four years, as listed below:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=46)

	Number Managers	Percent Managers
Attendance at regional or national meetings of professional societies	29	63
Workshops or seminars on managerial topics	23	50
Company in-service training courses	13	28
Managerial development within company	5	11
Short refresher courses at colleges or universities	4	9
Correspondence courses	4	9
Workshops or seminars in liberal arts or humanities	2	4
High school courses	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=46)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	57	34	7	2	0
In-plant reports and bulletins	46	30	12	5	7
Subordinate-superior discussions or meetings	42	47	9	2	0
Manufacturer's literature	40	49	9	2	0
Scientific and technical journals	30	50	18	2	0
Business reports	28	35	15	15	7
Technical books, reports, abstracts and indexes	27	39	32	2	0
Management journals	25	37	11	20	7
Professional society meetings	18	41	27	14	0
Lectures, conferences, workshops and seminars	10	45	26	12	7
Use of consultants	7	9	42	37	5
Company in-service courses	2	19	12	26	41
College and university evening courses	2	0	14	74	10
College and university day courses	0	0	5	90	5

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=46)

	Number Managers	Percent Managers
Correspondence courses.	23	50
Programmed instruction.	20	43
Educational television.	18	39
Courses recorded on records	15	33
Courses recorded on tapes	13	28
Two-way telephone courses	7	15
Two-way radio courses	5	11
Other (not specified)	1	2

Company Attitudes Toward Education

Of the 45 managers responding to a question on the attitude of their immediate superior toward continuing their education, 33 percent (N=15) said the superior encouraged them and 67 percent (N=30) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities. (Table 30)

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=46)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	75	23	0	2
Hold office in professional societies.	62	18	0	20
Attend company training courses.	59	12	0	29
Attend seminars or workshops away from the company. . .	56	21	7	16
Write technical and professional papers. . . .	55	20	2	23
Enroll for advanced work . .	46	36	0	18
Educational leave of absence	4	17	15	64

Thirty-one percent of the middle managers indicated that they were employed by companies which provided in-service training; 65 percent were not, and four percent did not know. Forty-eight percent said the training was entirely on company time, 21 percent said it was partly on company time, three percent said it was not on company time, and 28 percent did not know.

Eighty-two percent reported that their company had an educational assistance plan. Seven percent said it did not and 11 percent did not know. Fifty percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 35 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	14
About 3/4	0
About 2/3	0
About 1/2	14
About 1/3	0
Less than 1/3	0
Don't know	7
Total	35

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	8
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	1
51 - 100	0
50 or less	0
Don't know	25
Total	34

When asked about the effect of available company educational assistance in motivating them to undertake further education, 11 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 64 percent said it had no effect. There is an inconsistency here: while 36 percent said the availability of financial aid motivated them to some extent, only one person was actually enrolled and eight were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Professional, Scientific, and Controlling Instruments, 69 first-line supervisors from seven companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 69 first-line supervisors in the category of Professional, Scientific, and Controlling Instruments were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Communications.	54
Decision Making	54

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=68)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Decision Making	37	54	59	86
Fundamentals of the Supervisor's Job	33	49	53	79
Inter-Departmental Cooperation	33	49	55	82
The Tools and Techniques of Effective Supervision	33	49	60	89
Supervisor's Role in Company Economics	30	44	58	85
Supervisor's Role in Employee Discipline	26	39	53	79
Employee Training and Evaluation				
Evaluation of Employee Performance	28	42	51	76
Safety	25	38	43	65
Employee Training	22	32	44	64
The Supervisor and the Union				
Grievance Procedure and Arbitration	21	31	44	65
Labor Relations	20	29	41	60
Labor Relations Legislation	12	18	27	40
Developing Those We Supervise				
Communications	37	54	60	88
Human Aspect of Management	28	42	55	82
Leadership	28	42	54	81
Developing the Work Team	21	31	48	71

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Thirty-three percent (N=23) of the first-line supervisors were 40 years of age or younger. Eighty percent (N=55) were high school graduates, 14 percent (N=10) had the bachelor's degree, and one percent (N=1) had the master's degree; no one had the doctorate. Seven percent (N=5) had gone to business school and 23 percent (N=16) to trade school. The major fields of study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	7	1
Education	1	0
Engineering	1	0
Liberal Arts	1	0
Total	10	1

Below is a listing of major areas of work for the first-line supervisors in the Professional, Scientific, and Controlling Instruments industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	7	11
Engineering	5	8
Finance	3	5
Industrial Relations	1	2
Maintenance	4	6
Manufacturing	25	35
Marketing and Sales	7	11
Production Control - Records	3	5
Purchasing and Procurement	2	3
Research and Development	2	3
Traffic and Transportation	3	5
Other (not specified)	4	6
Total	66	100

Methods of Updating

Fifty-eight percent (N=38) of the first-line supervisors would take a credit course and 79 percent (N=54) would take a non-credit course if they were offered locally.

Two supervisors were currently enrolled for the bachelor's degree. Three were planning to enroll, one for the associate degree and two for the bachelor's. The major fields of study were: three in engineering, one in business administration, and one in law.

For the 47 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	11	23
Cannot afford it.	11	23
Job demands no more education	8	18
Not a high school graduate.	7	15
Not interested.	5	11
Live too far from educational center. .	3	6
Can do better on my own	2	4
Total.	47	100

The variety of educational methods used by first-line supervisors for updating within the past four years follows:

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=69)

	Number Supervisors	Percent Supervisors
Company in-service training courses . .	27	39
Workshops or seminars on managerial topics.	24	35
Managerial development within company .	22	32
Attendance at regional or national meetings of professional societies. .	19	28
Correspondence courses.	10	14
Short refresher courses at colleges or universities	6	9
High school courses to improve job performance	4	6
Workshops or seminars in liberal arts or humanities	2	3
Television courses.	2	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=63)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	56	34	5	2	3
In-plant reports and bulletins	51	28	5	6	10
Subordinate-superior discussions or meetings	38	46	9	2	5
Manufacturer's literature	38	29	8	19	6
Technical books, reports, abstracts, and indexes	32	27	20	19	2
Scientific and technical journals	26	21	18	31	4
Professional society meetings	20	13	9	56	2
Business reports	19	29	17	33	2
Management journals	16	38	11	24	11
Lectures, conferences, workshops, and seminars	14	25	17	20	24
Use of consultants	11	13	21	50	5
Company in-service courses	8	19	8	25	40
College and university evening courses	4	9	4	70	13
College and university day courses	0	0	2	94	4

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=69)

	Number Supervisors	Percent Supervisors
Programmed instruction.	38	55
Correspondence courses.	34	49
Educational television.	16	23
Courses recorded on tapes	10	14
Courses recorded on records	7	10
Two-way radio courses	4	6
Two-way telephone courses	3	4
Other (not specified)	3	4

Company Attitudes Toward Education

A total of 64 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-seven percent (N=30) said the superior encouraged them; 50 percent (N=32) said he was noncommittal, and three percent (N=2) said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent of those who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=61)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	76	4	0	20
Attend professional meetings	70	13	2	15
Enroll for advanced work .	63	11	0	26
Attend seminars or workshops away from the company.	54	15	2	29
Hold office in professional socieities.	50	17	2	31
Write technical and professional papers. . .	31	17	0	52
Educational leave of absence.	5	10	7	78

Thirty-seven percent of the supervisors indicated that they were employed by companies which provided in-service training; 54 percent said their company did not provide it and nine percent did not know. Twenty-two percent said the training was completely on company time, 25 percent said it was partly on company time, 28 percent said it was entirely on the men's own time, and 25 percent did not know.

Seventy-one percent reported that their company had an educational assistance plan; 22 percent said it did not, and seven percent did now know. Fifty-six percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 40 supervisors who answered the question, is shown below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	23
About 3/4	1
About 2/3	1
About 1/2	9
About 1/3	0
Less than 1/3	0
Don't know	6
Total	40

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	10
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	1
51 - 100	1
50 or less	0
Don't know	28
Total	40

When asked what the effect of available financial assistance was on their motivation to undertake further education, 30 percent of the supervisors said it strongly encouraged them, 20 percent said it partially influenced them, and 50 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 50 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 69 respondents were actually enrolled and three were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Professional, Scientific, and Controlling Instruments as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were not similar. Managers and supervisors in this category showed both lower and different educational needs than did the group as a whole.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Professional, Scientific, and Controlling Instruments N=12	Total Report N=705
Product Planning	58	*
Effective Reading Skills	58	*
Improving Decision Making of Managers	50	*
Communication in the Organization	*	59
Management Development	*	53
Long-range Planning and Forecasting for Corporate Growth	*	50
Effective Speaking	*	50
Effective Written Communications	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent Professional, Scientific, and Controlling Instruments N=12	Total Report N=705
Effective Written Communications	58	74
Working Effectively with Individuals and Groups	55	66
Creativity and Innovation	55	*
Management Development	50	56
Effective Speaking	*	67
Communication in the Organization	*	65
Effective Reading Skills	*	62
Listening Skills	*	62
Performance Appraisal and Counseling Techniques	*	57
Human Aspect of Management	*	54
Improving Decision Making of Managers	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in the Professional, Scientific, and Controlling Instruments industry and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent Professional, Scientific, and Controlling Instruments N=46	Total Report N=1,202
Management Development	77	66
Effective Communication in the Organization	73	64
Creativity and Innovation	67	*
Working Efficiently with Individuals	60	65
Oral Presentation of Reports	55	*
Performance Appraisal and Counseling Techniques	51	*
Supervisory Training and Employee Development	*	53

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Professional, Scientific, and Controlling Instruments N=46	Total Report N=1,202
Effective Communication in the Organization.	52	56
Supervisory Training and Employee Development.	*	61
Working Efficiently with Individuals	*	62
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following selected from a list of 16 subjects:

	"Should Have" Percent	
	Professional, Scientific, and Controlling Instruments N=69	Total Report N=1,713
Decision Making.	54	54
Communications	54	51
Fundamentals of the Supervisor's Job	*	64
Leadership	*	57
The Tools and Techniques of Effective Supervision. . . .	*	55
Human Aspect of Management	*	53

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63 Banks
M-64 Chemical, Rubber, and Plastic Products
M-65 Construction
M-66 Department Stores
M-67 Electrical Machinery
M-68 Fabricated Metal Products
M-69 Food and Kindred Products
M-70 Insurance
M-71 Machinery (Except Electrical)
M-72 Petroleum Refining
M-73 Primary Metals
M-74 Professional, Scientific, and Controlling Instruments
M-75 Railroads
M-76 Stone, Clay, and Glass Products
M-77 Telephone and Telegraph
M-78 Transportation
M-79 Transportation Equipment
M-80 Gas and Electric Utilities
M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1 Chemical
E-2 Civil
E-3 Electrical-Electronics
E-4 Electrical-Power
E-5 Engineering-General
E-6 Industrial
E-7 Mechanical
E-8 Metallurgical
E-9 Mining

Industrial Groups:

E-10 Aircraft, Motors, and Parts
E-11 Chemical and Allied
E-12 Electrical Machinery and Equipment
E-13 Machinery
E-14 Mining
E-15 Paper and Allied
E-16 Petroleum Refining
E-17 Primary Metals
E-18 Professional, Scientific, and Controlling Instruments
E-19 Research and Consulting Laboratories
E-20 Transportation
E-21 Electric Utilities
E-22 Gas Utilities
E-23 Telephone and Telegraph
E-24 Water Utilities
E-53 Construction
E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54 Hospital Administrators
H-55 Nursing Service and Nursing Education
H-56 Supervisory Personnel in the Dietary Department
H-57 Supervisory Personnel in the Engineering and Maintenance Department
H-58 Supervisory Personnel in the Business Office and Purchasing Department
H-59 Supervisory Personnel in the Medical Records Department
H-60 Supervisory Personnel in the Institutional Care Departments
H-61 Personnel Directors
H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE RAILROAD INDUSTRY IN PENNSYLVANIA

M-75

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE RAILROAD INDUSTRY IN PENNSYLVANIA

M-75

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES 2

SUMMARY 2

Top Management 2
Middle Management 2
First-Line Supervision 3

TOP MANAGEMENT 3

Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT 8

Educational Needs Within Areas of Managerial Responsibility 8
Background Information of Middle Managers 16

Personal, Educational and Professional Background 16
Methods of Updating 17
Company Attitudes Toward Education 19

FIRST-LINE SUPERVISION 21

Educational Needs 21
Background Information of First-Line Supervisors 22

Personal, Educational, and Professional Background 22
Methods of Updating 24
Company Attitudes Toward Education 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN RAILROADS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 28

Top Management 28
Middle Management 29
First-Line Supervision 30

RECOMMENDATIONS. 31

For the University. 31
For Business and Industry 31
For the Individual Manager and Supervisor 32
For Professional Associations 32

LIST OF TABLES

PAGE

1. Top Management — General Management 4

2. Top Management — Behavioral Science and Management 5

3. Top Management — Communications Techniques 5

4. Top Management — Economics 5

5. Top Management — Quantitative Methods Applied to Business and Industry 6

6. Top Management — Industrial Relations and Personnel Management 6

7. Top Management — Financial Management 6

8. Top Management — Manufacturing and Production 7

9. Top Management — Marketing 7

10. Top Management — International Management 7

11. Middle Management — General Management 9

12. Middle Management — Behavioral Science and Management 9

13. Middle Management — Communication 10

14. Middle Management — Economics 10

15. Middle Management — Quantitative Methods Applied to Business and Industry 11

16. Middle Management — Computer Operations and Data Processing 11

17. Middle Management — Industrial Relations and Personnel Management 12

18. Middle Management — Financial Management 13

19. Middle Management — Manufacturing and Production 13

20. Middle Management — Marketing 14

21. Middle Management — Sales Management 14

22. Middle Management — International Management 15

PAGE

23. Middle Management — Research and Development 15

24. Middle Management — Major Fields of Study of College Graduates 16

25. Middle Management — Major Areas of Work 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education 17

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 17

28. Middle Management — Sources of Information Used in Updating . . 18

29. Middle Management — Preference for Media of Course Presentation 19

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management — Proportion of Tuition Paid 20

32. Middle Management — Maximum Amount of Tuition Paid Per Year . . 20

33. First-Line Supervision Training Needs 22

34. First-Line Supervision — Major Fields of Study of College Graduates 23

35. First-Line Supervision — Major Areas of Work 23

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 24

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 24

38. First-Line Supervision — Sources of Information Used in Updating 25

39. First-Line Supervision — Preference for Media of Course Presentation 26

40. Supervisors' Perception of Company Policy Toward Professional Development 26

41. First-Line Supervision — Proportion of Tuition Paid 27

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE RAILROAD INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 267 managers and supervisors from seven companies in the Railroad industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their education background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, seven were checked by 50 percent or more of top managers as "Should Have". (Page 3)

For those they supervise, 50 percent or more of top managers said eight courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a need for five of 54 listed courses, in areas of communication, general management, and behavioral science and management. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need ten of the listed courses. (Page 8)

The educational level was high, with 52 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for four out of 16 courses. (Page 21)

Thirty-two percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages22-26)

TOP MANAGEMENT

In the industrial category of Railroads, 52 top managers from seven companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses with a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	65
Overall Strategy and Goals	62
Management Development	60
Industrial Organization and Administration	59
Effective Written Communications	54
Policy Formation	53
Managerial Motivation	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications	83
Effective Reading Skills	72
Listening Skills	72
Effective Speaking	67
Communication in the Organization	67
Working Effectively with Individuals and Groups	67
Creativity and Innovation	55
Management Development	55

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=51)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Overall Strategy and Goals	62	84	29
Industrial Organization and Administration	59	86	33
Policy Formation	53	83	30
Management Reporting Systems	46	81	43
Improving Decision Making of Managers	43	69	30
Long-range Planning and Forecasting for Corporate Growth	41	80	20
Managing Major Change in Organizations	40	73	20
Impact of Computer Technology	39	76	41
Effective Utilization of Manpower Resources and Allocation	38	74	40
Impact of Science and Technology on Business Management	30	75	18
Management of Research and Development	30	45	35
Impact of Government Legislation and Controls on Business	21	63	19
Ethical Considerations in Business	18	58	28
Impact of Multinational Aspects of Planning and Control	8	16	3

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=48)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	65	91	67
Managerial Motivation	51	84	29
Human Aspect of Management	48	80	48
Working Effectively with Individuals and Groups	46	77	67
Creativity and Innovation	45	78	55
Political, Social, and Cultural Trends and Their Impact on Business Management	3	35	5

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	54	78	83
Effective Speaking	47	71	67
Effective Reading Skills	44	77	72
Listening Skills	30	77	72

TABLE 4

ECONOMICS
(N=43)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	12	49	16
Comparative Economic Systems	5	28	10

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=40)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	28	54	38
Survey Course on Quantitative Methods.	25	55	25

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=47)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	60	81	55
Performance Appraisal and Counseling Techniques.	41	75	41
Incentives	35	65	23
Criteria and Selection of Personnel.	21	61	33
Personnel Policy Affecting Wage and Salary Structure	19	47	23
Personnel Policy Affecting Labor-Management Relations . .	17	46	27
Personnel Policy Affecting Employment Practices	14	48	20

TABLE 7

FINANCIAL MANAGEMENT
(N=42)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting and Budgeting.	43	62	31
Fundamentals of Financial Reporting and Statement Analysis	41	62	33
Capital Budgeting.	30	55	25
Financial Planning and Forecasting.	18	46	15

TABLE 8

MANUFACTURING AND PRODUCTION
(N=38)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	34	47	37
Operations Research Applied to Production.	22	44	19
Operations Planning and Control.	17	42	33

TABLE 9

MARKETING
(N=38)

	"Should Have" Percent	"Should Have and "Could Use" Percent	"Subordinates' Needs" Percent
Logistics Planning	31	37	14
Product Planning	26	35	17
Pricing.	22	36	11
Marketing Research	18	44	21

TABLE 10

INTERNATIONAL MANAGEMENT
(N=37)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. . .	3	22	3
International Economic Analysis.	0	11	6

MIDDLE MANAGEMENT

In the industrial category of Railroads, 87 middle managers from seven companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	68
Effective Communication in the Organization	65
Working Efficiently with Individuals	61
Business Letter Writing	58
Supervisory Training and Employee Development	51

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Business Letter Writing	77
Supervisory Training and Employee Development	69
Working Efficiently with Individuals	68
Effective Report Writing	68
Effective Reading Skills	67
Effective Communication in the Organization	64
Oral Presentation of Reports	60
Management Development	58
Listening Skills	51
Creativity and Innovation	50

The follwing tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Railroad category.

TABLE 11

GENERAL MANAGEMENT
(N=81)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	68	92	58
Working Efficiently with Individuals	61	92	68
Supervisory Training and Employee Development	51	82	69
Criteria and Selection of Personnel for Promotion	46	88	42
Performance Appraisal and Counseling Techniques	44	86	47
Effective Utilization of Manpower Resources and Allocation	41	71	42
Analyzing Organizational Behavior	38	77	34
The Application of Information Technology on Decision Making	28	62	32
Long-range Planning and Forecasting for Corporate Growth	24	60	27
Impact of Computer Technology	24	55	30
Principles and Analysis of Office Systems	22	65	44
Impact of Science and Technology on Business Management	12	55	17
Impact of Government Legislation and Controls on Business	11	36	21

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=74)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation	41	77	50
Understanding Group Interaction and Behavior	31	59	34
Management Psychology	28	64	28
Human Aspect of Management	20	68	38
Industrial Sociology	9	36	16
Social and Cultural Trends and Their Impact on Business Management	4	30	13
Impact of Consumer Behavior on Management	4	15	8

TABLE 13

COMMUNICATION
(N=77)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	65	92	64
Business Letter Writing	58	90	77
Effective Report Writing	49	83	68
Effective Reading Skills	42	83	67
Oral Presentation of Reports	42	71	60
Conference Leadership	39	71	39
Listening Skills	38	80	51

TABLE 14

ECONOMICS
(N=72)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	19	36	25
The Price Mechanism	17	30	17
Economics of Technology and Innovation	10	26	11
Fundamentals of Economics	7	31	21
Economic Trends	6	36	16
International Economics	4	11	6
The Economic Systems of the United States	3	16	8
Comparative Economic Systems	3	10	6

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=71)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	37	67	24
Statistical Decision Theory	30	53	20
Linear Programming	23	44	23
Statistical Procedures and Methods	22	39	26
Applying Program Evaluation and Review Techniques (PERT)	22	32	19
Replacement Management	17	53	23
Inventory Management	16	29	17
Dynamic Programming	12	27	12
Review of Basic Mathematics	12	25	31
Waiting Lines	12	22	14
Probability Theory	10	26	15
Matrix Algebra	4	14	12
Calculus of Finite Differences	3	12	9
Analytic Geometry	2	13	9
Calculus of Infinite Series	2	11	8

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=70)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing	23	56	34
Applying the Computer to Problems of Business and Management	19	55	27
Fundamentals of Programming for Computer Operations	14	37	22
Mathematics for Digital Computers	10	23	15

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT (N=38)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	45	79	29
Management and Labor Relations	38	54	38
In-plant Training.	32	67	35
Maintaining Efficient and Up-To-Date Personnel Records. . .	25	59	34
Job Analysis and Job Evaluation Methods	24	63	33
Industrial Safety and Medical Services	21	39	33
Salary and Wage Administration	13	32	19
Employee Benefit Plans	10	33	19

TABLE 18

FINANCIAL MANAGEMENT
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	52	76	44
New Developments in Equipment Replacement Policy	27	50	23
Managerial Accounting.	24	52	16
Fundamentals of Financial Reporting and Statement Analysis	19	43	14
Taxes.	9	32	14
Financial Planning and Forecasting.	8	41	13

TABLE 19

MANUFACTURING AND PRODUCTION
(N=27)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Automation	56	75	52
Value Analysis	50	63	42
Production Planning and Control Management	46	58	46
Methods Analysis and Work Simplification	44	72	56
Maintenance Planning and Control.	44	64	60
Engineering Economy.	42	57	31
Quality Control.	32	64	40
Inventory Management	32	56	40
Materials Handling	32	40	36
Organization and Management of Purchasing Operations.	4	46	17

TABLE 20

MARKETING
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Management	17	28	6
Marketing Research	11	43	5
Fundamentals of Marketing	6	45	6
Fundamentals of Pricing	5	26	5
Product Planning	0	33	6
Physical Distribution Methods . .	0	24	0
Application of Management Science and Computers to Marketing Problems	0	21	5
Packaging Design and Development .	0	19	0
Brand Marketing	0	12	0

TABLE 21

SALES MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen	48	52	22
Selection and Evaluation of Field Salesmen	46	57	21
Supervision of Field Salesmen . .	46	50	27
Training of Field Salesmen	43	50	32
Compensation of Field Salesmen . .	38	46	23

TABLE 22

INTERNATIONAL MANAGEMENT
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Commercial Policy and Trade Control	13	20	7
Monetary Exchange Problems	7	14	7
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	7	14	7
International Economic Organization	7	14	7
International Understanding	7	7	7
United States Foreign Economic Policy	7	7	7
Sources of Funds: Financing of Day-to-Day Transactions	7	7	7
Appraising and Developing Foreign Markets	7	7	7
International Economic Analysis	0	7	0

TABLE 23

RESEARCH AND DEVELOPMENT
(N=16)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning Budgeting and Control of Projects	38	57	25
Building Research and Development Teams	25	50	13
Guidelines for Selecting and Appraising New Projects	25	31	6
Evaluation of the Research and Development Programs	19	44	6
Supervision and Management of Research Services	19	44	6

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-three percent (N=20) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-two percent (N=78) had completed high school, 52 percent (N=45) had the bachelor's degree, and six percent (N=5) had the master's degree. No one had the doctorate. Fourteen percent (N=12) went to business school and five percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below.

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	8	3
Education	2	0
Engineering	29	1
Liberal Arts	5	0
Other (not specified)	1	1
Total	45	5

The major areas of work for the middle managers in the railroad industry are shown below.

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	19	22
Engineering	7	8
Finance	6	7
Industrial Relations	6	7
Maintenance	5	6
Manufacturing	1	1
Marketing and Sales	6	7
Production Control — Records	1	1
Purchasing and Procurement	1	1
Research and Development	1	1
Service (yard and labor personnel, etc.)	3	5
Traffic and Transportation	24	28
Other (not specified).	5	6
Total	85	100

Methods of Updating

Fifty-five percent (N=46) of the middle managers would take a credit course and 73 percent (N=62) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the associate degree. Five planned to enroll, one for the associate degree, two for the bachelor's. and two for the master's. Major fields of study indicated were four in business administration, one in engineering, and one in law.

Eighty percent had no plans for further degree work and their reasons are given below.

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	36	51
Job demands no more education	7	10
Not interested.	5	7
Live too far from educational center. . .	4	6
Not a high school graduate	4	6
Cannot afford it.	2	3
Can do better on my own	2	3
Other (not specified)	10	14
Total.	70	100

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=87)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics . . .	40	46
Attendance at regional or national meetings of professional societies.	32	37
Company in-service training courses.	24	28
Managerial development within company.	16	18
Short refresher courses at colleges or universities	12	14
Correspondence courses	5	6
Workshops or seminars in liberal arts or humanities	3	3

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=80)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	70	28	1	0	1
In-plant reports and bulletins . . .	62	36	1	1	0
Subordinate-superior discussions or meetings	57	37	3	0	3
Management journals	36	50	9	4	1
Business reports	35	42	18	4	1
Manufacturer's literature	29	32	21	17	1
Scientific and technical journals .	26	33	20	20	1
Technical books, reports, abstracts and indexes	22	35	30	12	1
Lectures, conferences, workshops and seminars	21	34	29	7	9
Professional society meetings . . .	20	41	24	12	3
Company in-service courses	7	36	18	10	29
Use of consultants	4	11	31	43	11
College-university evening courses .	1	6	7	78	8
College-university day courses . . .	0	1	3	90	6

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=87)

	Number Managers	Percent Managers
Correspondence courses	35	40
Programmed instruction	29	33
Educational television	25	29
Courses recorded on records	13	15
Courses recorded on tapes	12	14
Two-way telephone courses	6	7
Two-way radio courses	4	5
Other (not specified)	6	7

Company Attitudes Toward Education

Of the 76 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 37 percent (N=28) said the superior encouraged them and 63 percent (N=48) said the superior was noncommittal. No one said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=80)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	90	3	0	7
Attend professional meetings	81	12	3	4
Hold office in professional societies	71	13	3	13
Attend workshops or seminars away from the company	67	18	3	12
Write technical and professional papers	41	22	1	36
Enroll for advanced work	38	28	4	28
Educational leave of absence	21	14	6	59

Fifty percent of the middle managers were employed by companies which provided in-service training 45 percent were not, and five percent did not know. Forty percent said the training was entirely on company time, 35 percent said it was partly on company time, nine percent said it was not on company time, and 16 percent did not know.

Twenty percent reported that their company had an educational assistance plan. Sixty-five percent said it did not and 15 percent did not know. Twenty-five percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	4
About 3/4	1
About 2/3	0
About 1/2	0
About 1/3	0
Less than 1/3	0
Don't know	6
Total	11*

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	2
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know	8
Total	10*

* Only a few of the 87 middle managers in the railroad companies replied to these two questions.

When asked about the effect of available company educational assistance in motivating them to undertake further education, 33 percent of the middle managers said it had strongly encouraged them, 27 percent said it had partially influenced them, and 40 percent said it had no effect. There is an inconsistency here: while 60 percent said the availability of aid motivated them to some extent, only one person was actually enrolled and five were planning to enroll.

FIRST-LINE SUPERVISION

In the industrial category of Railroads, 128 first-line supervisors from seven companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

Educational Needs

The 128 first-line supervisors in the category of Railroads were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job	54
Safety	54
Inter-Departmental Cooperation	53
Decision Making	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=125)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	68	54	113	90
Inter-Departmental Cooperation	64	53	107	89
Decision Making	61	50	103	84
Supervisor's Role in Company Economics	57	47	95	78
The Tools and Techniques of Effective Supervision	53	43	104	85
Supervisor's Role in Employee Discipline	49	40	94	77
Employee Training and Evaluation				
Safety	66	54	100	82
Evaluation of Employee Performance	54	44	104	85
Employee Training	52	42	92	75
The Supervisor and the Union				
Labor Relations	51	41	91	74
Grievance Procedure and Arbitration	45	37	89	73
Labor Relations Legislation	27	22	71	58
Developing Those We Supervise				
Leadership	59	48	102	83
Communications	55	45	106	87
Human Aspect of Management	54	44	100	82
Developing the Work Team	48	40	99	82

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Twenty-seven percent (N=35) of the first-line supervisors were 40 years of age or younger. Eighty-seven percent (N=111) were high school graduates, and 32 percent (N=41) had the bachelor's degree. One person had the master's degree; no one had the doctorate. Sixteen percent (N=21) had gone to business school and 12 percent (N=15) to trade school. The major fields of study are indicated in the following table.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	6	1
Engineering	29	0
Law	1	0
Liberal Arts	4	0
Other (not specified)	1	0
Total	41	1

The major areas of work for the first-line supervisors in the railroad industry are shown in the following table:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	15	12
Engineering	9	7
Finance	2	2
Industrial Relations	4	3
Maintenance	29	23
Manufacturing	3	2
Marketing and Sales	4	3
Production Control - Records	0	0
Purchasing and Procurement	2	2
Research and Development	2	2
Service (yard and labor personnel, etc)	10	8
Traffic and Transportation	42	33
Other (not specified)	4	3
Total	126	100

Methods of Updating

Fifty-six percent (N=71) of the first-line supervisors would take a credit course and 76 percent (N=96) would take a non-credit course if they were offered locally.

No supervisors were currently enrolled in a degree program. Three were planning to enroll, one for the bachelor's and two for the master's degrees. One planned to enroll in business administration, one in education, and one in engineering.

For the 108 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	44	41
Job demands no more education	10	9
Cannot afford it	8	7
Not interested	8	7
Live too far from educational center	6	6
Not a high school graduate	5	5
Can do better on my own	1	1
Other (not specified)	26	24
Total	108	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=128)

	Number Supervisors	Percent Supervisors
Workshops or seminars on managerial topics	35	27
Attendance at regional or national meetings of professional societies	29	23
Company in-service training courses	25	20
Managerial development within company	18	14
Correspondence courses	10	8
Short refresher courses at colleges or universities	9	7
High school courses to improve job performance	7	5
Workshops or seminars in liberal arts or humanities	2	2
Television courses	1	1

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=117)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussions with company personnel (informal or formal)	71	27	1	1	0
In-plant reports and bulletins	68	27	0	3	2
Subordinate-superior discusscions or meetings	57	35	4	1	3
Management journals	29	43	13	8	7
Business reports	23	41	18	17	1
Manufacturer's literature	22	43	16	17	2
Scientific and technical journals	20	33	20	22	5
Technical books, reports, abstracts and indexes	18	40	17	21	4
Lectures, conferences, workshops, and seminars	11	36	28	14	11
Company in-service courses	11	25	5	29	30
Professional society meetings	11	21	28	36	4
Use of consultants	5	17	21	51	6
College-university evening courses	1	4	7	77	11
College-university day courses	0	2	1	94	3

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=128)

	Number Supervisors	Percent Supervisors
Correspondence courses	64	50
Programmed instruction	58	45
Educational television	26	20
Courses recorded on records . . .	21	16
Courses recorded on tapes	20	16
Two-way telephone courses	11	9
Two-way radio courses	11	9
Other (not specified)	9	7

Company Attitudes Toward Education

A total of 117 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Thirty-two percent (N=38) said the superior encouraged him; 67 percent said he was noncommittal, and one individual said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=122)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	81	4	2	13
Attend professional meetings	73	8	1	18
Hold office in professional societies	61	19	0	20
Attend seminars or workshops away from the company . .	45	16	6	33
Enroll for advanced work . .	38	27	2	33
Write technical and professional papers	33	20	2	45
Educational leave of absence	12	11	11	66

Forty-eight percent of the supervisors were employed by companies which provided in-service training; 38 percent said their company did not provide it and 14 percent did not know. Thirty-nine percent said the training was completely on company time, 21 percent said it was partly on company time, nine percent said it was entirely on the men's own time, and 31 percent did not know.

Twenty-six percent reported that their company had an educational assistance plan; 49 percent said it did not, and 26 percent did not know. Thirty-three percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below.

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	12
About 3/4	0
About 2/3	0
About 1/2	0
About 1/3	0
Less than 1/3	0
Don't know	20
Total	32

Table 42 shows the maximum amount of tuition paid by the company per year as shown by the two out of a total of 32 first-line supervisors who indicated this knowledge.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	2
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know	30
Total	32

When asked what the effect of available financial assistance was on their motivation to undertake further education, 29 percent of the supervisors said it strongly encouraged them, 20 percent said it partially influenced them, and 51 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 49 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, no one was actually enrolled and only three were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN RAILROADS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Railroads as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Railroads N=52	Total Report N=705
Communication in the Organization	65	59
Overall Strategy and Goals	62	50
Management Development	60	53
Industrial Organization and Administration	59	*
Effective Written Communications	54	50
Policy Formation	53	*
Managerial Motivation	51	*
Long-range Planning and Forecasting for Corporate Growth	*	50
Effective Speaking	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Railroads N=52	Total Report N=705
Effective Written Communications	83	74
Effective Reading Skills	72	62
Listening Skills	72	62
Effective Speaking	67	67
Working Effectively with Individuals and Groups	67	66
Communication in the Organization	67	65
Management Development	55	56
Creativity and Innovation	55	*
Performance Appraisal and Counseling Techniques	*	57
Human Aspect of Management	*	54
Improving Decision Making of Managers	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Railroads and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Railroads N=87	Total Report N=1202
Management Development	68	66
Effective Communication in the Organization	65	64
Working Efficiently with Individuals	61	65
Business Letter Writing	58	*
Supervisory Training and Employee Development	51	53

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Railroads N=87	Total Report N=1202
Business Letter Writing	77	*
Supervisory Training and Employee Development	69	61
Working Efficiently with Individuals	68	62
Effective Report Writing	68	*
Effective Reading Skills	67	*
Effective Communication in the Organization .	64	56
Oral Presentation of Reports	60	*
Management Development	58	*
Listening Skills	51	50
Creativity and Innovation	50	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Railroads N=128	Total Report N=1713
Fundamentals of the Supervisor's Job	54	64
Safety	54	*
Inter-Departmental Cooperation	53	*
Decision Making.	50	54
Leadership	*	57
The Tools and Techniques of Effective Supervision.	*	55
Human Aspect of Management	*	53
Communications	*	51

* Less than 50 percent

RECOMMENDATIONS

For the total report, Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania, the following recommendations were made:

For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership - was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63 Banks
M-64 Chemical, Rubber, and Plastic Products
M-65 Construction
M-66 Department Stores
M-67 Electrical Machinery
M-68 Fabricated Metal Products
M-69 Food and Kindred Products
M-70 Insurance
M-71 Machinery (Except Electrical)
M-72 Petroleum Refining
M-73 Primary Metals
M-74 Professional, Scientific, and Controlling Instruments
M-75 Railroads
M-76 Stone, Clay, and Glass Products
M-77 Telephone and Telegraph
M-78 Transportation
M-79 Transportation Equipment
M-80 Gas and Electric Utilities
M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1 Chemical
E-2 Civil
E-3 Electrical-Electronics
E-4 Electrical-Power
E-5 Engineering-General
E-6 Industrial
E-7 Mechanical
E-8 Metallurgical
E-9 Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY IN PENNSYLVANIA

M-76

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION. 1

SURVEY PROCEDURES 2

SUMMARY 2

Top Management 2
Middle Management. 2
First-Line Supervision 3

TOP MANAGEMENT. 3

Educational Needs Within Areas of Managerial Responsibility. . . . 3

MIDDLE MANAGEMENT 8

Educational Needs Within Areas of Managerial Responsibility. . . . 8
Background Information of Middle Managers. 16

Personal, Educational, and Professional Background. 16
Methods of Updating 17
Company Attitudes Toward Education. 19

FIRST-LINE SUPERVISION. 21

Educational Needs. 21
Background Information of First-Line Supervisors 22

Personal, Educational, and Professional Background. 22
Methods of Updating 23
Company Attitudes Toward Education. 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 28

Top Management 28
Middle Management. 29
First-Line Supervision 30

RECOMMENDATIONS 31

For the University 31
For Business and Industry. 31
For the Individual Manager and Supervisor. 32
For Professional Associations. 32

LIST OF TABLES

PAGE

1. Top Management — General Management. 5
2. Top Management -- Behavioral Science and Management 5
3. Top Management —-Communications Techniques 6
4. Top Management — Economics 6
5. Top Management — Quantitative Methods Applied to Business and Industry. 6
6. Top Management — Industrial Relations and Personnel Management. 7
7. Top Management — Financial Management. 7
8. Top Management — Manufacturing and Production. 7
9. Top Management — Marketing 8
10. Top Management — International Management. 8
11. Middle Management — General Management 10
12. Middle Management — Behavioral Science and Management. 10
13. Middle Management — Communication. 11
14. Middle Management — Economics. 11
15. Middle Management — Quantitative Methods Applied to Business and Industry. 12
16. Middle Management — Computer Operations and Data Processing. . . 12
17. Middle Management — Industrial Relations and Personnel Management. 13
18. Middle Management — Financial Management 13
19. Middle Management — Manufacturing and Production 14
20. Middle Management — Marketing. 14
21. Middle Management — Sales Management 15
22. Middle Management — International Management 15

PAGE

23. Middle Management — Research and Development 15

24. Middle Management — Major Fields of Study of College Graduates 16

25. Middle Management — Major Areas of Work. 16

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 17

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 17

28. Middle Management — Sources of Information Used in Updating. . . 18

29. Middle Management — Preference for Media of Course Presentation. 19

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management — Proportion of Tuition Paid 20

32. Middle Management — Maximum Amount of Tuition Paid Per Year. . . 20

33. First-Line Supervision Training Needs 22

34. First-Line Supervision — Major Fields of Study of College Graduates 23

35. First-Line Supervision — Major Areas of Work 23

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 24

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 24

38. First-Line Supervision — Sources of Information Used in Updating. 25

39. First-Line Supervision — Preference for Media of Course Presentation. 26

40. Supervisors' Perception of Company Policy Toward Professional Development 26

41. First-Line Supervision — Proportion of Tuition Paid. 27

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year. 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 125 managers and supervisors from nine companies in the Stone, Clay, and Glass Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, 15 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 13 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management, behavioral science and management, and communication, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need five of the listed courses. (Page 9)

The educational level was good, with 44 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for two out of 16 courses. (Page 21)

Twenty-two percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-26)

TOP MANAGEMENT

In the industrial category of Stone, Clay, and Glass Products, 21 top managers from nine companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	76
Managerial Motivation	72
Management Development.	68
Effective Written Communications.	62
Working Effectively with Individuals and Groups	61
Performance Appraisal and Counseling Techniques	58
Improving Decision Making of Managers	57
Industrial Organization and Administration.	56
Human Aspect of Management.	56
Criteria and Selection of Personnel	53
Effective Speaking.	53
Creativity and Innovation	50
Listening Skills.	50
Incentives	50
Personnel Policy Affecting Labor-Management Relations	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Communication in the Organization	88
Effective Reading Skills	79
Working Effectively with Individuals and Groups	78
Effective Speaking	76
Listening Skills	72
Effective Written Communications	71
Managerial Motivation	67
Improving Decision Making of Managers	62
Human Aspect of Management	61
Performance Appraisal and Counseling Techniques	58
Managerial Accounting and Budgeting	56
Planning and Utilization of Physical Facilities	53
Operations Planning and Control	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=21)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	57	81	62
Industrial Organization and Administration	56	100	44
Long-range Planning and Forecasting for Corporate Growth	48	77	29
Management Reporting Systems	38	71	43
Overall Strategy and Goals	38	67	38
Effective Utilization of Manpower Resources and Allocation	32	69	21
Management of Research and Development	31	62	19
Managing Major Change in Organizations	31	50	19
Impact of Computer Technology	26	58	21
Policy Formation	24	67	24
Impact of Science and Technology on Business Management	24	65	24
Impact of Government Legislation and Controls on Business	13	26	19
Ethical Considerations in Business	12	41	12
Impact of Multinational Aspects of Planning and Control	0	24	18

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	76	100	88
Managerial Motivation	72	94	67
Working Effectively with Individuals and Groups	61	83	78
Human Aspect of Management	56	100	61
Creativity and Innovation	50	67	39
Political, Social, and Cultural Trends and Their Impact on Business Management	18	36	24

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=21)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	62	86	71
Effective Speaking	53	88	76
Listening Skills	50	94	72
Effective Reading Skills . . .	47	89	79

TABLE 4

ECONOMICS
(N=16)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Comparative Economic Systems .	13	20	27
Economic Trends.	6	56	13

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. .	20	53	33
Survey Course on Quantitative Methods.	14	57	21

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT (N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	68	94	47
Performance Appraisal and Counseling Techniques. . . .	58	90	58
Criteria and Selection of Personnel.	53	90	47
Personnel Policy Affecting Labor-Management Relations .	50	78	44
Incentives	50	72	39
Personnel Policy Affecting Wage and Salary Structure. .	44	61	39
Personnel Policy Affecting Employment Practices	28	61	33

TABLE 7

FINANCIAL MANAGEMENT (N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Accounting and Budgeting.	33	55	56
Fundamentals of Financial Reporting and Statement Analysis	12	59	35
Capital Budgeting.	6	50	28
Financial Planning and Forecasting.	6	41	24

TABLE 8

MANUFACTURING AND PRODUCTION (N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Operations Planning and Control.	44	69	50
Planning and Utilization of Physical Facilities.	35	70	53
Operations Research Applied to Production.	22	55	22

TABLE 9

MARKETING
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Logistics Planning	44	57	25
Pricing.	41	70	35
Product Planning	39	61	44
Marketing Research	12	41	29

TABLE 10

INTERNATIONAL MANAGEMENT
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. .	20	40	20
International Economic Analysis	7	20	0

MIDDLE MANAGEMENT

In the industrial category of Stone, Clay, and Glass Products, 39 middle managers from nine companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	71
Performance Appraisal and Counseling Techniques	65
Working Efficiently with Individuals	62
Effective Communication in the Organization	61
Supervisory Training and Employee Development	55
Creativity and Innovation	51

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Communication in the Organization	64
Supervisory Training and Employee Development	63
Working Efficiently with Individuals	59
Management Development	50
Listening Skills	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Stone, Clay, and Glass Products industrial category.

TABLE 11

GENERAL MANAGEMENT
(N=39)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	71	95	50
Performance Appraisal and Counseling Techniques. . . .	65	84	49
Working Efficiently with Individuals.	62	92	59
Supervisory Training and Employee Development	55	79	63
Criteria and Selection of Personnel for Promotion. . .	45	74	29
Effective Utilization of Manpower Resources and Allocation	41	69	33
Analyzing Organizational Behavior	31	67	31
Principles and Analysis of Office Systems	29	66	11
The Application of Information Technology on Decision Making	14	49	5
Impact of Science and Technology on Business Management.	11	54	11
Long-range Planning and Forecasting for Corporate Growth	11	54	5
Impact of Government Legislation and Controls on Business	11	38	3
Impact of Computer Technology.	11	33	8

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=38)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation. . .	51	75	46
Understanding Group Interaction and Behavior.	38	76	38
Human Aspect of Management . .	37	69	32
Management Psychology.	30	71	22
Industrial Sociology	19	54	30
Impact of Consumer Behavior on Management.	11	43	8
Social and Cultural Trends and Their Impact on Business Management.	5	40	8

TABLE 13

COMMUNICATION
(N=37)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	61	97	64
Effective Reading Skills . . .	49	84	35
Effective Report Writing . . .	46	87	43
Listening Skills	42	75	50
Oral Presentation of Reports .	41	87	38
Conference Leadership.	32	62	22
Business Letter Writing. . . .	31	64	36

TABLE 14

ECONOMICS
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	29	60	17
The Price Mechanism.	14	57	9
Fundamentals of Economics. . .	9	40	11
Economic Trends.	9	40	3
Economics of Technology and Innovation	6	37	3
The Economic Systems of the United States.	3	23	3
International Economics. . . .	3	14	3
Comparative Economic Systems .	0	14	6

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=36)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	43	83	17
Review of Basic Mathematics. .	26	52	37
Applying Program Evaluation and Review Techniques (PERT)	26	52	6
Statistical Decision Theory. .	17	63	9
Replacement Management	17	54	6
Inventory Management	17	53	17
Statistical Procedures and Methods	17	48	6
Probability Theory	17	34	11
Linear Programming	9	32	3
Dynamic Programming.	9	32	0
Waiting Lines.	6	23	6
Analytic Geometry.	6	23	6
Calculus of Finite Differences	6	21	3
Matrix Algebra	6	15	3
Calculus of Infinite Series. .	3	18	6

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. .	20	54	11
Applying the Computer to Problems of Business and Management	17	54	11
Fundamentals of Programming for Computer Operations. . .	9	24	9
Mathematics for Digital Computers.	3	18	6

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	71	92	29
Job Analysis and Job Evaluation Methods	69	92	69
Maintaining Efficient and Up-To-Date Personnel Records. .	64	78	50
Industrial Safety and Medical Services	50	71	43
Management and Labor Relations	46	84	54
In-plant Training.	40	73	27
Employee Benefit Plans	25	58	17

TABLE 18

FINANCIAL MANAGEMENT
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	29	58	14
Managerial Accounting.	14	28	0
Financial Planning and Forecasting.	0	17	0
Taxes.	0	17	0
Fundamentals of Financial Reporting and Statement Analysis	0	14	0
New Developments in Equipment Replacement Policy	0	14	0

TABLE 19

MANUFACTURING AND PRODUCTION
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Value Analysis	65	95	48
Maintenance Planning and Control.	56	84	48
Production Planning and Control Management	54	89	27
Quality Control.	48	80	36
Automation	48	76	20
Materials Handling	43	78	57
Methods Analysis and Work Simplification	39	91	52
Inventory Management	35	70	26
Engineering Economy.	32	68	18
Organization and Management of Purchasing Operations. . . .	25	67	17

TABLE 20

MARKETING
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	40	90	40
Fundamentals of Pricing. . . .	38	51	0
Marketing Management	29	29	14
Marketing Research	29	29	14
Physical Distribution Methods.	25	50	0
Application of Management Science and Computers to Marketing Problems	25	38	0
Brand Marketing.	25	25	0
Packaging Design and Development.	14	71	29
Fundamentals of Marketing. . .	14	43	14

TABLE 21

SALES MANAGEMENT
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	20	40	0
Training of Field Salesmen . .	0	20	20
Compensation of Field Salesmen	0	20	0
Selection and Evaluation of Field Salesmen	0	17	17

TABLE 22

INTERNATIONAL MANAGEMENT
(N=4)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Appraising and Developing Foreign Markets.	0	25	0
International Law.	0	0	25
International Understanding. .	0	0	25

Seven other courses were listed, and no managers reported a need for themselves or for those they supervise.

TABLE 23

RESEARCH AND DEVELOPMENT
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Evaluation of the Research and Development Programs	17	50	0
Planning Budgeting and Control of Projects	17	50	0
Guidelines for Selecting and Appraising New Projects. . .	17	50	0
Building Research and Development Teams	0	50	17
Supervision and Management of Research Services.	0	33	17

Background Information of Middle Managers

Personal, Educational, and Professional Background

Sixty-six percent (N=26) of the 39 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-two percent (N=35) had completed high school, 44 percent (N=17) had the bachelor's degree, and eight percent (N=3) had the master's degree. No one had the doctorate. Thirteen percent (N=5) went to business school and 13 percent (N=5) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Architecture	1	0
Business Administration.	5	2
Engineering.	3	0
Liberal Arts	5	0
Mineral Industries	2	0
Psychology	1	0
Other (not specified).	0	1
Total	17	3

The major areas of work for the middle managers in the Stone, Clay, and Glass Products industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	9	23
Engineering.	3	8
Finance.	2	5
Industrial Relations	2	5
Manufacturing.	15	37
Marketing and Sales.	1	3
Production Control — Records.	3	8
Purchasing and Procurement	2	5
Traffic and Transportation	1	3
Other (not specified).	1	3
Total	39	100

Methods of Updating

Sixty-two percent (N=23) of the middle managers would take a credit course and 74 percent (N=29) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree, and one for the master's. Four managers planned to enroll, two for the bachelor's and two for the master's degrees. The curriculum of four managers was business administration.

Eighty-two percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	10	31
Live too far from educational center. . . .	4	13
Cannot afford it.	4	13
Job demands no more education	3	9
Not interested.	3	9
Not a high school graduate.	2	6
Other (not specified)	6	19
Total.	32	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=39)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics	21	54
Managerial development within company . . .	19	49
Company in-service training courses	15	38
Attendance at regional or national meetings of professional societies	12	31
Correspondence courses.	5	13
Short refresher courses at colleges or universities.	4	10
Workshops or seminars in liberal arts or humanities.	1	3
High school courses	1	3

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources:

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=39)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	59	38	3	0	0
Subordinate-superior discussions or meetings.	50	45	5	0	0
In-plant reports and bulletins . .	48	41	8	0	3
Manufacturer's literature.	30	43	24	3	0
Business reports	28	41	28	3	0
Company in-service courses	16	19	19	19	27
Professional society meetings. . .	14	27	19	35	5
Management journals.	11	57	22	5	5
Technical books, reports, abstracts, and indexes	8	40	38	14	0
Scientific and technical journals.	8	38	32	19	3
Lectures, conferences, workshops, and seminars	3	62	16	11	8
Use of consultants	3	24	35	30	8
College and university evening courses.	3	8	19	59	11
College and university day courses.	0	8	11	75	6

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=39)

	Number Managers	Percent Managers
Correspondence courses.	15	38
Programmed instruction.	14	36
Educational television.	13	33
Courses recorded on tapes	6	15
Courses recorded on records	6	15
Two-way telephone courses	4	10
Two-way radio courses	2	5

Company Attitudes Toward Education

Of the 39 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 56 percent (N=22) said the superior encouraged them and 44 percent (N=17) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=38)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	83	11	3	3
Attend company training courses.	81	0	3	16
Hold office in professional societies. .	78	11	3	8
Attend seminars or workshops away from the company.	78	5	3	14
Enroll for advanced work	64	14	0	22
Write technical and professional papers. .	60	17	3	20
Educational leave of absence.	9	17	17	57

Sixty-five percent of the middle managers indicated that they were employed by companies which provided in-service training; 32 percent were not, and three percent did not know. Sixty-two percent said the training was entirely on company time, 19 percent said it was partly on company time, three percent said it was not on company time, and 16 percent did not know.

Seventy-four percent reported that their company had an educational assistance plan. Eighteen percent said it did not and eight percent did not know. Fifty-six percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 29 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	21
About 3/4	5
About 2/3	0
About 1/2	3
About 1/3	0
Less than 1/3	0
Don't know	0
Total	29

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION
PAID PER YEAR

	Number Managers
More than $300	10
251 - 300	0
201 - 250	0
151 - 200	2
101 - 150	0
51 - 100	0
50 or less	0
Don't know	15
Total	27

When asked about the effect of available company educational assistance in motivating them to undertake further education, 31 percent of the middle managers said it had strongly encouraged them, 45 percent said it had partially influenced them, and 24 percent said it had no effect. There is an inconsistency here: while 76 percent said the availability of financial aid motivated them to some extent to take further education, only three persons were actually enrolled and four were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Stone, Clay, and Glass Products, 65 first-line supervisors from nine companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 65 first-line supervisors in the category of Stone, Clay, and Glass Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job	56
Safety	53

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=63)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . .	35	56	57	91
Supervisor's Role in Employee Discipline	27	46	48	82
Decision Making.	27	45	51	85
The Tools and Techniques of Effective Supervision.	27	45	49	82
Supervisor's Role in Company Economics .	25	42	50	84
Inter-Departmental Cooperation	23	38	48	80
Employee Training and Evaluation				
Safety	32	53	55	91
Employee Training.	28	46	48	79
Evaluation of Employee Performance . . .	24	41	45	77
The Supervisor and the Union				
Grievance Procedure and Arbitration. . .	25	42	45	76
Labor Relations.	25	40	44	71
Labor Relations Legislation.	10	18	30	53
Developing Those We Supervise				
Leadership	30	49	54	88
Communications	27	44	50	82
Human Aspect of Management	25	41	52	85
Developing the Work Team	20	33	43	71

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Fifty-four percent (N=31) of the first-line supervisors were 40 years of age or younger. Sixty-one percent (N=39) were high school graduates, 22 percent (N=14) had the bachelor's degree, and no one had the master's degree or the doctorate. Two percent (N=1) had gone to business school and 17 percent (N=11) to trade school. The major fields of study for the bachelor's degree are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE STUDENTS

	Number Bachelor's
Business Administration	3
Engineering	6
Liberal Arts	1
Psychology	2
Other (not specified)	2
Total	14

Below is a listing of the major areas of work for the first-line supervisors in the Stone, Clay, and Glass Products industry:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	3	5
Engineering	4	6
Industrial Relations	3	5
Maintenance	10	16
Manufacturing	23	36
Production Control — Records	8	13
Service (yard and labor personnel,etc.)	10	16
Other (not specified)	2	3
Total	63	100

Methods of Updating

Fifty percent (N=32) of the first-line supervisors would take a credit course and 71 percent (N=45) would take a non-credit course if they were offered locally.

One supervisor was enrolled for the associate degree. Twelve supervisors planned to enroll: three for the bachelor's degree and nine for the master's. Major fields of study were: seven in business administration, three in engineering, and two in other fields which were not specified.

For the eighty percent (N=52) of the supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Not a high school graduate	14	27
Don't have the time	11	21
Cannot afford it	10	19
Job demands no more education	8	15
Live too far from educational center	4	8
Not interested	3	6
Other (not specified)	2	4
Total	52	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=65)

	Number Supervisors	Percent Supervisors
Managerial development within company	24	37
Company in-service training courses	23	35
Workshops or seminars on managerial topics	21	32
Attendance at regional or national meetings of professional societies	10	15
Correspondence courses	10	15
Short refresher courses at colleges or universities	2	3
Workshops or seminars in liberal arts or humanities	1	2
High school courses to improve job performance	1	2
Television courses	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=55)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	63	35	0	0	2
Subordinate-superior discussions or meetings.	60	31	7	0	2
In-plant reports and bulletins	53	33	5	5	4
Manufacturer's literature.	31	44	9	11	5
Management journals.	28	28	22	13	9
Lectures, conferences, workshops, and seminars	20	28	24	15	13
Company in-service courses	19	17	17	17	30
Technical books, reports, abstracts, and indexes	18	40	7	24	11
Scientific and technical journals.	15	31	16	31	7
Professional society meetings. . .	10	10	17	50	13
Use of consultants	8	25	23	36	8
Business reports	5	44	20	29	2
College and university evening courses.	2	2	6	64	26
College and university day courses.	2	2	2	82	12

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=65)

	Number Supervisors	Percent Supervisors
Correspondence courses	29	45
Programmed instruction	23	35
Educational television	10	15
Courses recorded on records.	3	5
Two-way radio courses.	3	5
Courses recorded on tapes.	2	3
Two-way telephone courses.	1	2
Other (not specified).	3	5

Company Attitudes Toward Education

A total of 60 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Sixty-two percent (N=37) said the superior encouraged them; 37 percent (N=22) said he was noncommittal, and one percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=54)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	85	4	2	9
Attend seminars or workshops away from the company.	69	12	0	19
Enroll for advanced work	65	10	2	23
Attend professional meetings	62	12	2	24
Hold office in professional societies. .	42	29	5	24
Write technical and professional papers . . .	37	18	3	42
Educational leave of absence.	24	13	2	61

Seventy-five percent of the supervisors indicated that they were employed by companies which provided in-service training; 20 percent said their company did not provide it and five percent did not know. Forty-two percent said the training was completely on company time, 34 percent said it was partly on company time, nine percent said it was entirely on the men's own time, and 15 percent did not know.

Eighty-one percent reported that their company had an educational assistance plan; 11 percent said it did not, and eight percent did not know. Fifty-nine percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 41 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	20
About 3/4	7
About 2/3	1
About 1/2	3
About 1/3	0
Less than 1/3	0
Don't know	10
Total	41

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	5
251 - 300	1
201 - 250	0
151 – 200	1
101 - 150	0
51 - 100	0
50 or less	1
Don't know	30
Total	38

When asked what the effect of available financial assistance was on their motivation to undertake further education, 23 percent of the supervisors said it strongly encouraged them, 47 percent said it partially influenced them, and 30 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 70 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only one of the 65 respondents was actually enrolled and 12 were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Stone, Clay, and Glass Products as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied a good deal. For top and middle management and those they supervise, the needs were higher, but for the first-line supervisors the needs were lower.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Stone, Clay, and Glass Products N=21	Total Report N=705
Communication in the Organization.	76	59
Managerial Motivation	72	*
Management Development	68	53
Effective Written Communications	62	50
Working Effectively with Individuals and Groups. . . .	61	*
Performance Appraisal and Counseling Techniques. . . .	58	*
Improving Decision Making of Managers.	57	*
Industrial Organization and Administration	56	*
Human Aspect of Management	56	*
Criteria and Selection of Personnel.	53	*
Effective Speaking	53	50
Creativity and Innovation.	50	*
Listening Skills	50	*
Incentives	50	*
Personnel Policy Affecting Labor-Management Relations.	50	*
Long-range Planning and Forecasting for Corporate Growth	*	50
Overall Strategy and Goals	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent Stone, Clay, and Glass Products N=21	Total Report N=705
Communication in the Organization	88	65
Effective Reading Skills.	79	62
Working Effectively with Individuals and Groups . . .	78	66
Effective Speaking.	76	67
Listening Skills.	72	62
Effective Written Communications.	71	74
Managerial Motivation	67	*
Improving Decision Making of Managers	62	54
Human Aspect of Management.	61	54
Performance Appraisal and Counseling Techniques . . .	58	57
Managerial Accounting and Budgeting	56	*
Planning and Utilization of Physical Facilities . . .	53	*
Operations Planning and Control	50	*
Management Development.	*	56

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Stone, Clay, and Glass Products and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent Stone, Clay, and Glass Products N=39	Total Report N=1,202
Management Development.	71	66
Performance Appraisal and Counseling Techniques . . .	65	*
Working Efficiently with Individuals	62	65
Effective Communication in the Organization	61	64
Supervisory Training and Employee Development	55	53
Creativity and Innovation	51	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Stone, Clay, and Glass Products N=39	Total Report N=1,202
Effective Communication in the Organization	64	56
Supervisory Training and Employee Development	63	61
Working Efficiently with Individuals.	59	62
Listening Skills.	50	50
Management Development.	50	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Stone, Clay, and Glass Products N=65	Total Report N=1,713
Fundamentals of the Supervisor's Job.	56	64
Safety.	53	*
Leadership.	*	57
The Tools and Techniques of Effective Supervision . .	*	55
Decision Making	*	54
Human Aspect of Management.	*	53
Communications.	*	51

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63 Banks
M-64 Chemical, Rubber, and Plastic Products
M-65 Construction
M-66 Department Stores
M-67 Electrical Machinery
M-68 Fabricated Metal Products
M-69 Food and Kindred Products
M-70 Insurance
M-71 Machinery (Except Electrical)
M-72 Petroleum Refining
M-73 Primary Metals
M-74 Professional, Scientific, and Controlling Instruments
M-75 Railroads
M-76 Stone, Clay, and Glass Products
M-77 Telephone and Telegraph
M-78 Transportation
M-79 Transportation Equipment
M-80 Gas and Electric Utilities
M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1 Chemical
E-2 Civil
E-3 Electrical-Electronics
E-4 Electrical-Power
E-5 Engineering-General
E-6 Industrial
E-7 Mechanical
E-8 Metallurgical
E-9 Mining

Industrial Groups:

E-10 Aircraft, Motors, and Parts
E-11 Chemical and Allied
E-12 Electrical Machinery and Equipment
E-13 Machinery
E-14 Mining
E-15 Paper and Allied
E-16 Petroleum Refining
E-17 Primary Metals
E-18 Professional, Scientific, and Controlling Instruments
E-19 Research and Consulting Laboratories
E-20 Transportation
E-21 Electric Utilities
E-22 Gas Utilities
E-23 Telephone and Telegraph
E-24 Water Utilities
E-53 Construction
E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54 Hospital Administrators
H-55 Nursing Service and Nursing Education
H-56 Supervisory Personnel in the Dietary Department
H-57 Supervisory Personnel in the Engineering and Maintenance Department
H-58 Supervisory Personnel in the Business Office and Purchasing Department
H-59 Supervisory Personnel in the Medical Records Department
H-60 Supervisory Personnel in the Institutional Care Departments
H-61 Personnel Directors
H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TELEPHONE AND TELEGRAPH INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN THE
TELEPHONE AND TELEGRAPH
INDUSTRY IN PENNSYLVANIA

M-77

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES 2

SUMMARY 2

- Top Management. 2
- Middle Management 2
- First-Line Supervision 3

TOP MANAGEMENT 3

- Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 9

- Educational Needs Within Areas of Managerial Responsibility 9
- Background Information of Middle Managers 17
  - Personal, Educational and Professional Background 17
  - Methods of Updating. 18
  - Company Attitudes Toward Education 20

FIRST-LINE SUPERVISION 22

- Educational Needs 22
- Background Information of First-Line Supervisors 23
  - Personal, Educational, and Professional Background 23
  - Methods of Updating 24
  - Company Attitudes Toward Education 27

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN TELEPHONE AND TELEGRAPH WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT . . . 29

- Top Management. 29
- Middle Management 30
- First-Line Supervision. 31

RECOMMENDATIONS. 32

- For the University. 32
- For Business and Industry 32
- For the Individual Manager and Supervisor 33
- For Professional Associations 33

LIST OF TABLES

PAGE

1. Top Management — General Management 5
2. Top Management — Behavioral Science and Management. 5
3. Top Management — Communications Techniques. 6
4. Top Management — Economics. 6
5. Top Management — Quantitative Methods Applied to Business and Industry 6
6. Top Management — Industrial Relations and Personnel Management 7
7. Top Management — Financial Management 7
8. Top Management — Manufacturing and Production 7
9. Top Management — Marketing. 8
10. Top Management — International Management 8
11. Middle Management — General Management. 10
12. Middle Management — Behavioral Science and Management 11
13. Middle Management — Communication 11
14. Middle Management — Economics 12
15. Middle Management — Quantitative Methods Applied to Business and Industry 12
16. Middle Management — Computer Operations and Data Processing 13
17. Middle Management — Industrial Relations and Personnel Management 13
18. Middle Management — Financial Management. 14
19. Middle Management — Manufacturing and Production. 14
20. Middle Management — Marketing 15
21. Middle Management — Sales Management 15
22. Middle Management — International Management. 16

PAGE

23. Middle Management — Research and Development. 16

24. Middle Management — Major Fields of Study of College Graduates. 17

25. Middle Management — Major Areas of Work 17

26. Middle Management — Reasons for Not Undertaking Additional Formal Education 18

27. Middle Management — Educational Methods Used for Updating Within the Past Four Years 18

28. Middle Management — Sources of Information Used in Updating . . . 19

29. Middle Management — Preference for Media of Course Presentation 20

30. Managers' Perception of Company Policy Toward Professional Development. 20

31. Middle Management — Proportion of Tuition Paid. 21

32. Middle Management — Maximum Amount of Tuition Paid Per Year . . . 21

33. First-Line Supervision Training Needs. 23

34. First-Line Supervision — Major Fields of Study of College Graduates. 24

35. First-Line Supervision — Major Areas of Work. 24

36. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 25

37. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 25

38. First-Line Supervision — Sources of Information Used in Updating 26

39. First-Line Supervision — Preference for Media of Course Presentation 27

40. Supervisors' Perception of Company Policy Toward Professional Development. 27

41. First-Line Supervision — Proportion of Tuition Paid 28

42. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 28

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TELEPHONE AND TELEGRAPH INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 313 managers and supervisors from ten companies in the Telephone and Telegraph industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, 13 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 16 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a need for ten of 54 listed courses, in areas of communication, general management, and behavioral science and management. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need 12 of the listed courses. (Page 10)

The educational level was fairly high, with 37 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 17-20)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 12 out of 16 courses. (Page 22)

Twelve percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23,24)

TOP MANAGEMENT

In the industrial category of Telephone and Telegraph, 58 top managers from ten companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses with a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization	67
Impact of Computer Technology	65
Performance Appraisal and Counseling Techniques	61
Overall Strategy and Goals	60
Management Development	57
Effective Speaking	56
Listening Skills	56
Managerial Motivation	56
Working Effectively with Individuals and Groups	56
Long-range Planning and Forecasting for Corporate Growth	54
Managing Major Change in Organizations	52
Policy Formation	50
Improving Decision Making of Managers	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	'Subordinates' Needs Percent
Effective Written Communications	87
Improving Decision Making of Managers.	85
Working Effectively with Individuals and Groups.	83
Effective Speaking	80
Communication in the Organization.	79
Performance Appraisal and Counseling Techniques.	76
Listening Skills	75
Management Development	74
Effective Reading Skills	71
Human Aspect of Management	69
Managerial Motivation.	67
Criteria and Selection of Personnel.	67
Impact of Computer Technology.	59
Management Reporting Systems	55
Statistical Decision Theory.	53
Creativity and Innovation.	52

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the 'Should Have' response. Also included, in the 'Subordinates' Needs column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=58)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Impact of Computer Technology. .	65	87	59
Overall Strategy and Goals . . .	60	76	36
Long-range Planning and Forecasting for Corporate Growth .	54	83	39
Managing Major Change in Organizations.	52	78	30
Improving Decision Making of Managers	50	91	85
Policy Formation	50	79	30
Management Reporting Systems . .	47	81	55
Impact of Government Legislation and Controls on Business . . .	46	79	42
Industrial Organization and Administration	46	75	37
Effective Utilization of Manpower Resources and Allocation	42	77	44
Impact of Science and Technology on Business Management	40	73	37
Ethical Considerations in Business	30	69	36
Management of Research and Development.	7	24	7
Impact of Multinational Aspects of Planning and Control. . . .	2	6	2

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=57)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	67	92	79
Managerial Motivation.	56	93	67
Working Effectively with Individuals and Groups	56	82	83
Creativity and Innovation. . . .	46	65	52
Human Aspect of Management . . .	45	78	69
Political, Social, and Cultural Trends and Their Impact on Business Management.	26	60	32

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=56)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	56	86	80
Listening Skills	56	83	75
Effective Written Communications	48	77	87
Effective Reading Skills	43	75	71

TABLE 4

ECONOMICS
(N=48)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	13	59	27
Comparative Economic Systems . .	10	35	19

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory . .	29	62	53
Survey Course on Quantitative Methods	28	51	32

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=54)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Performance Appraisal and Counseling Techniques	61	91	76
Management Development	57	91	74
Criteria and Selection of Personnel	46	71	67
Incentives	32	68	38
Personnel Policy Affecting Labor-Management Relations	31	74	41
Personnel Policy Affecting Wage and Salary Structure	29	67	29
Personnel Policy Affecting Employment Practices	27	58	38

TABLE 7

FINANCIAL MANAGEMENT
(N=54)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Capital Budgeting	44	64	35
Financial Planning and Forecasting	43	69	25
Managerial Accounting and Budgeting	40	66	38
Fundamentals of Financial Reporting and Statement Analysis	38	63	42

TABLE 8

MANUFACTURING AND PRODUCTION
(N=45)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities	11	29	18
Operations Planning and Control	5	19	14
Operations Research Applied to Production	5	17	7

TABLE 9

MARKETING
(N=48)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	21	40	29
Pricing	13	33	20
Product Planning	9	28	14
Logistics Planning	5	19	10

TABLE 10

INTERNATIONAL MANAGEMENT
(N=48)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding . .	15	34	8
International Economic Analysis	4	25	2

MIDDLE MANAGEMENT

In the industrial category of Telephone and Telegraph, 108 middle managers from ten companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Effective Communication in the Organization	81
Working Efficiently with Individuals	76
Management Development	72
Performance Appraisal and Counseling Techniques	69
Criteria and Selection of Personnel for Promotion	68
Supervisory Training and Employee Development	58
Listening Skills	58
Human Aspect of Management	56
Effective Reading Skills	54
Oral Presentation of Reports	53

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Supervisory Training and Employee Development	88
Working Efficiently with Individuals	81
Effective Communication in the Organization	77
Management Development	73
Listening Skills	68
Performance Appraisal and Counseling Techniques	66
Effective Reading Skills	65
Business Letter Writing	63
Oral Presentation of Reports	61
Criteria and Selection of Personnel for Promotion	58
Effective Report Writing	57
Human Aspect of Management	56

The tables following, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Telephone and Telegraph category.

TABLE 11

GENERAL MANAGEMENT
(N=102)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals	76	95	81
Management Development	72	94	73
Performance Appraisal and Counseling Techniques	69	88	66
Criteria and Selection of Personnel for Promotion	68	88	58
Supervisory Training and Employee Development	58	82	88
Analyzing Organizational Behavior	38	74	28
Principles and Analysis of Office Systems	34	64	23
The Application of Information Technology on Decision Making	30	68	27
Long-range Planning and Forecasting for Corporate Growth	30	59	19
Effective Utilization of Manpower Resources and Allocation	26	60	29
Impact of Computer Technology	25	64	28
Impact of Science and Technology on Business Management	17	60	23
Impact of Government Legislation and Controls on Business	17	53	14

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=99)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management . .	56	85	56
Creativity and Innovation . .	38	78	38
Management Psychology.	36	79	33
Understanding Group Interaction and Behavior	35	83	47
Industrial Sociology	20	61	21
Social and Cultural Trends and Their Impact on Business Management	19	50	18
Impact of Consumer Behavior on Management	15	40	14

TABLE 13

COMMUNICATION
(N=99)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	81	95	77
Listening Skills	58	85	68
Effective Reading Skills . . .	54	85	65
Oral Presentation of Reports .	53	84	61
Business Letter Writing. . . .	48	79	63
Effective Report Writing . . .	46	77	57
Conference Leadership.	41	79	47

TABLE 14

ECONOMICS
(N=97)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Economics . . .	23	51	28
Economic Trends	19	51	18
Economics of Production and Cost	15	41	17
The Economic Systems of the United States	13	43	13
The Price Mechanism	9	35	11
Comparative Economic Systems. .	3	29	9
Economics of Technology and Innovation	3	24	1
International Economics	2	19	1

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=102)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	45	79	40
Review of Basic Mathematics. .	32	55	38
Applying Program Evaluation and Review Techniques (PERT) . .	26	56	26
Statistical Procedures and Methods	26	49	26
Statistical Decision Theory .	21	63	24
Replacement Management	20	47	16
Probability Theory	18	47	20
Waiting Lines.	14	29	13
Inventory Management	10	33	13
Linear Programming	8	29	10
Dynamic Programming.	8	26	9
Matrix Algebra	8	16	8
Analytic Geometry	6	24	7
Calculus of Infinite Series. .	5	15	6
Calculus of Finite Differences	5	14	4

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=98)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management . .	34	66	33
Data Systems and Processing. . .	33	71	34
Fundamentals of Programming for Computer Operations.	23	48	24
Mathematics for Digital Computers	15	30	11

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=49)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Job Analysis and Job Evaluation Methods.	61	85	48
In-plant Training.	60	85	44
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	57	88	43
Maintaining Efficient and Up-To-Date Personnel Records . . .	50	72	35
Industrial Safety and Medical Services	40	52	29
Salary and Wage Administration	37	64	17
Management and Labor Relations	31	62	24
Employee Benefit Plans	31	49	18

TABLE 18

FINANCIAL MANAGEMENT
(N=22)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	55	82	50
New Developments in Equipment Replacement Policy	45	68	23
Managerial Accounting.	40	60	30
Financial Planning and Forecasting.	35	64	29
Taxes.	35	53	29
Fundamentals of Financial Reporting and Statement Analysis	26	63	26

TABLE 19

MANUFACTURING AND PRODUCTION
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Maintenance Planning and Control	46	61	35
Engineering Economy.	33	66	33
Organization and Management of Purchasing Operations. . . .	29	39	19
Methods Analysis and Work Simplification	27	69	35
Value Analysis	24	34	24
Production Planning and Control Management	22	35	22
Quality Control.	21	34	21
Automation	19	33	19
Inventory Management	18	36	18
Materials Handling	18	23	14

TABLE 20

MARKETING
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Management	48	60	36
Fundamentals of Marketing. . .	39	65	35
Marketing Research	36	63	27
Product Planning	30	50	20
Application of Management Science and Computers to Marketing Problems	29	48	14
Fundamentals of Pricing. . . .	19	43	10
Physical Distribution Methods.	18	27	9
Brand Marketing.	14	32	18
Packaging Design and Development.	10	20	5

TABLE 21

SALES MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	53	53	32
Selection and Evaluation of Field Salesmen	44	44	31
Compensation of Field Salesmen	40	40	33
Supervision of Field Salesmen.	38	44	38
Training of Field Salesmen . .	31	44	38

TABLE 22

INTERNATIONAL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have and Could Use" Percent	Subordinates' Needs" Percent
Sources of Funds: Financing of Day-to-Day Transactions. . . .	8	25	0
International Economic Analysis.	8	16	8
Monetary Exchange Problems . . .	0	17	0

None of the middle managers indicated any need for six other subjects in international management for themselves or for those they supervise.

TABLE 23

RESEARCH AND DEVELOPMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Evaluation of the Research and Development Program.	25	33	17
Guidelines for Selecting and Appraising New Programs . . .	14	35	14
Supervision and Management of Research Services.	8	23	8
Planning Budgeting and Control of Projects.	7	43	0
Building Research and Development Teams.	7	36	7

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-seven percent (N=40) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-six percent (N=104) had completed high school, 37 percent (N=40) had the bachelor's degree, and three percent (N=3) had the master's degree. No one had the doctorate. Eleven percent (N=12) went to business school and two percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below.

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Architecture	1	0
Business Administration	15	1
Education	5	1
Engineering	9	0
Law	1	1
Liberal Arts	8	0
Psychology	1	0
Total	40	3

The major areas of work for the middle managers in the Telephone and Telegraph industry are shown below.

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	60	55
Engineering	15	14
Finance	3	3
Industrial Relations	3	3
Maintenance	6	6
Marketing and Sales	8	7
Production Control — Records	3	3
Purchasing and Procurement	2	2
Service (yard and labor personnel, etc.)	2	2
Traffic and Transportation	1	1
Other (not specified)	4	4
Total	107	100

Methods of Updating

Fifty-one percent (N=54) of the middle managers would take a credit course and 58 percent (N=63) would take a non-credit course if they were offered locally.

Five managers were currently enrolled for the bachelor's degree. Nine planned to enroll, two for the associate degree, two for the bachelor's, and five for the master's. The curriculum preferred by those enrolled or planning to enroll was: nine in business administration, two in engineering, one in architecture, and one in education.

Eighty-one percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	24	27
Not interested.	12	14
Job demands no more education	11	13
Live too far from educational center. . . .	6	7
Cannot afford it.	5	6
Can do better on my own	2	2
Not a high school graduate.	2	2
Other (not specified)	26	29
Total.	88	100

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=108)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics.	72	67
Managerial development within company . . .	68	63
Company in-service training courses	59	55
Attendance at regional or national meetings of professional societies. . . .	35	32
Short refresher courses at colleges or universities.	14	13
Correspondence courses.	12	11
Workshops or seminars in liberal arts or humanities.	8	7
Television courses.	2	2
High school courses	2	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources:

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING
(N=107)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	75	24	1	0	0
In-plant reports and bulletins . . .	75	21	1	2	1
Subordinate-superior discussions or meetings	73	22	5	0	0
Management journals	33	50	12	3	2
Business reports	32	40	21	6	1
Lectures, conferences, workshops and seminars	28	47	19	2	4
Manufacturer's literature	25	33	22	19	1
Company in-service courses	22	42	16	10	10
Technical books, reports, abstracts and indexes	18	37	28	15	2
Scientific and technical journals .	15	40	28	14	3
Professional society meetings . . .	9	18	32	41	0
Use of consultants	6	13	20	58	3
College-university evening courses .	2	3	13	70	12
College-university day courses . . .	0	1	7	90	2

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=108)

	Number Managers	Percent Managers
Programmed instruction	54	50
Correspondence courses	46	43
Educational television	42	39
Two-way telephone courses	16	15
Courses recorded on tapes	15	14
Courses recorded on records	14	13
Two-way radio courses	4	4
Other (not specified)	3	3

Company Attitudes Toward Education

Of the 101 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 41 percent (N=41) said the superior encouraged them and 59 percent (N=60) said the superior was noncommittal. No one said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=104)

	Encourages	Noncommittal	Discourages	Do Not Know
	Percent	Percent	Percent	Percent
Attend company training courses	98	1	0	1
Attend professional meetings	74	18	1	7
Hold office in professional societies	71	19	1	9
Enroll for advanced work	61	17	4	18
Attend workshops or seminars away from the company	58	21	5	16
Write technical and professional papers	37	30	2	31
Educational leave of absence	13	26	13	48

Eighty-one percent of the middle managers were employed by companies which provided in-service training; 18 percent were not, and two percent did not know. Seventy-seven percent said the training was entirely on company time, 15 percent said it was partly on company time, four percent said it was not on company time, and four percent did not know.

Eighty-seven percent reported that their company had an educational assistance plan. Eight percent said it did not and five percent did not know. Fifty-one percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below.

TABLE 31

PROPORTION OF TUITION PAID

	Number. Managers
All or almost all	14
About 3/4	26
About 2/3	0
About 1/2	26
About 1/3	1
Less than 1/3	2
Don't know	12
Total	81

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	15
251 - 300	4
201 - 250	17
151 - 200	1
101 - 150	0
51 - 100	0
50 or less	0
Don't know	39
Total	76

When asked about the effect of available company educational assistance in motivating them to undertake further education, 14 percent of the middle managers said it had strongly encouraged them, 21 percent said it had partially influenced them, and 65 percent said it had no effect. There is an inconsistency here: while 35 percent said the availability of aid motivated them to some extent, only five persons were actually enrolled and nine were planning to enroll.

FIRST-LINE SUPERVISION

In the industrial category of Telephone and Telegraph, 147 first-line supervisors from ten companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

Educational Needs

The 147 first-line supervisors in the category of Telephone and Telegraph were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job	77
Leadership	68
The Tools and Techniques of Effective Supervision	67
Evaluation of Employee Performance	67
Decision Making	65
Communications	65
Safety	64
Employee Training	63
Inter-Departmental Cooperation	63
Human Aspect of Management	63
Supervisor's Role in Employee Discipline	60
Supervisor's Role in Company Economics	56

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=145)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	112	77	134	92
The Tools and Techniques of Effective Supervision	95	67	132	93
Decision Making	92	65	133	94
Inter-Departmental Cooperation	89	63	125	88
Supervisor's Role in Employee Discipline	85	60	130	92
Supervisor's Role in Company Economics	78	56	117	84
Employee Training and Evaluation				
Evaluation of Employee Performance	95	67	129	91
Safety	91	64	125	88
Employee Training	90	63	127	89
The Supervisor and the Union				
Grievance Procedure and Arbitration	66	47	119	85
Labor Relations	62	44	116	83
Labor Relations Legislation	30	21	92	65
Developing Those We Supervise				
Leadership	97	68	134	94
Communications	93	65	131	92
Human Aspect of Management	89	63	134	95
Developing the Work Team	67	47	122	86

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Fifty-two percent (N=76) of the first-line supervisors were 40 years of age or younger. Ninety percent (N=130) were high school graduates, 12 percent (N=18) had the bachelor's degree, and one percent (N=2) had the master's degree; no one had the doctorate. Six percent (N=9) had gone to business school and 13 percent (N=19) to trade school. The major fields of study are indicated in the following table.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	9	1
Engineering	1	0
Liberal Arts	6	1
Other (not specified)	2	0
Total	18	2

The major areas of work for the first-line supervisors in Telephone and Telegraph are shown in the following table:

TABLE 35

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	61	41
Engineering	8	6
Maintenance	29	20
Marketing and Sales	7	5
Production Control - Records	6	4
Purchasing and Procurement	1	1
Service (yard and labor personnel, etc.)	13	9
Traffic and Transportation	1	1
Other (not specified)	18	13
Total	144	100

Methods of Updating

Fifty-five percent (N=80) of the first-line supervisors would take a credit course and 68 percent (N=100) would take a non-credit course if they were offered locally.

Four of the supervisors were currently enrolled in a degree program: one each for the associate, bachelor's, master's, and doctorate. Ten planned to enroll, two for the associate degree, four for the bachelor's, and four for the master's. Major fields of study preferred by those enrolled or planning to enroll were: 12 in business administration, one in engineering, one in liberal arts, and two in other fields which were not specified.

For the 118 supervisors who did not have plans for further formal education, the following reasons were indicated:

8

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	29	25
Cannot afford it.	19	16
Live too far from educational center. . .	11	9
Job demands no more education	11	9
Not interested.	11	9
Not a high school graduate.	7	6
Can do better on my own	1	1
Other (not specified)	29	25
Total.	118	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=147)

	Number Supervisors	Percent Supervisors
Managerial development within company . .	81	55
Company in-service training courses . . .	72	49
Workshops or seminars on managerial topics.	58	39
Correspondence courses.	14	10
Attendance at regional or national meetings of professional societies. . .	8	5
Short refresher courses at colleges or universities	8	5
Workshops or seminars in liberal arts or humanities.	6	4
High school courses to improve job performance	6	4
Television courses.	5	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING
(N=142)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	64	33	1	1	1
In-plant reports and bulletins	56	39	1	1	3
Subordinate-superior discussions or meetings	44	47	7	1	1
Technical books, reports, abstracts, and indexes	27	39	14	18	2
Company in-service courses	26	35	6	10	23
Manufacturer's literature	24	32	19	21	4
Management journals	20	48	17	11	3
Scientific and technical journals	17	34	21	24	4
Lectures, conferences, workshops, and seminars	12	47	14	9	18
Business reports	8	42	30	19	1
Use of consultants	8	12	15	58	7
College-university evening courses	5	8	5	77	5
Professional society meetings	3	5	18	67	7
College-university day courses	0	1	2	90	7

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preferences for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=147)

	Number Supervisors	Percent Supervisors
Programmed instruction	81	55
Correspondence courses	59	40
Educational television	53	36
Courses recorded on tapes	19	13
Courses recorded on records	17	12
Two-way telephone courses	15	10
Two-way radio courses	11	7
Other (not specified)	8	5

Company Attitudes Toward Education

A total of 141 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty-two percent (N=73) said the superior encouraged him; 48 percent said he was noncommittal, and no one said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=138)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	92	2	1	5
Hold office in professional societies	69	8	1	22
Attend professional meetings	66	8	2	24
Enroll for advanced work	60	9	1	30
Attend seminars or workshops away from the company	51	13	3	33
Write technical and professional papers	27	15	0	58
Educational leave of absence	9	13	8	70

Seventy-seven percent of the supervisors were employed by companies which provided in-service training; 20 percent said their company did not provide it and three percent did not know. Eighty-four percent said the training was completely on company time, seven percent said it was partly on company time, four percent said it was entirely on the men's own time, and five percent did not know.

Eighty-one percent reported that their company had an educational assistance plan; 12 percent said it did not, and seven percent did not know. Forty-nine percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below.

TABLE 41

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	11
About 3/4	28
About 2/3	3
About 1/2	35
About 1/3	4
Less than 1/3	3
Don't know	18
Total	102

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION
PAID PER YEAR

	Number Supervisors
More than $300	9
251 - 300	13
201 - 250	18
151 - 200	1
101 - 150	0
51 - 100	0
50 or less	0
Don't know	59
Total	100

When asked what the effect of available financial assistance was on their motivation to undertake further education, 17 percent of the supervisors said it strongly encouraged them, 34 percent said it partially influenced them, and 49 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 51 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only four of the 147 respondents were actually enrolled and ten were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN TELEPHONE AND TELEGRAPH WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Telephone and Telegraph as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Telephone and Telegraph N=58	Total Report N=705
Communication in the Organization.	67	59
Impact of Computer Technology.	65	*
Performance Appraisal and Counseling Techniques. . . .	61	*
Overall Strategy and Goals	60	50
Management Development	57	53
Effective Speaking	56	50
Listening Skills	56	*
Managerial Motivation.	56	*
Working Effectively with Individuals and Groups. . . .	56	*
Long-range Planning and Forecasting for Corporate Growth	54	50
Managing Major Change in Organizations	52	*
Policy Formation	50	*
Improving Decision Making of Managers.	50	*
Effective Written Communication.	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Telephone and Telegraph N=58	Total Report N=705
Effective Written Communications	87	74
Improving Decision Making of Managers	85	54
Working Effectively with Individuals and Groups	83	66
Effective Speaking	80	67
Communication in the Organization	79	65
Performance Appraisal and Counseling Techniques	76	57
Listening Skills	75	62
Management Development	74	56
Effective Reading Skills	71	62
Human Aspect of Management	69	54
Criteria and Selection of Personnel	67	*
Managerial Motivation	67	*
Impact of Computer Technology	59	*
Management Reporting Systems	55	*
Statistical Decision Theory	53	*
Creativity and Innovation	52	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Telephone and Telegraph and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Telephone and Telegraph N=108	Total Report N=1202
Effective Communication in the Organization	81	64
Working Efficiently with Individuals	76	65
Management Development	72	66
Performance Appraisal and Counseling Techniques	69	*
Criteria and Selection of Personnel for Promotion	68	*
Supervisory Training and Employee Development	58	53
Listening Skills	58	*
Human Aspect of Management	56	*
Effective Reading Skills	54	*
Oral Presentation of Reports	53	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Telephone and Telegraph N=108	Total Report N=1202
Supervisory Training and Employee Development	88	61
Working Efficiently with Individuals	81	62
Effective Communication in the Organization	77	56
Management Development	73	*
Listening Skills	68	50
Performance Appraisal and Counseling Techniques	66	*
Effective Reading Skills	65	*
Business Letter Writing	63	*
Oral Presentation of Reports	61	*
Criteria and Selection of Personnel for Promotion	58	*
Effective Report Writing	57	*
Human Aspect of Management	56	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Telephone and Telegraph N=147	Total Report N=1713
Fundamentals of the Supervisor's Job	77	64
Leadership	68	57
The Tools and Techniques of Effective Supervision	67	55
Evaluation of Employee Performance	67	*
Decision Making	65	54
Communications	65	51
Safety	64	*
Human Aspect of Management	63	53
Employee Training	63	*
Inter-Departmental Cooperation	63	*
Supervisor's Role in Employee Discipline	60	*
Supervisor's Role in Company Economics	56	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made.

For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership - was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent methods of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10 Aircraft, Motors, and Parts
E-11 Chemical and Allied
E-12 Electrical Machinery and Equipment
E-13 Machinery
E-14 Mining
E-15 Paper and Allied
E-16 Petroleum Refining
E-17 Primary Metals
E-18 Professional, Scientific, and Controlling Instruments
E-19 Research and Consulting Laboratories
E-20 Transportation
E-21 Electric Utilities
E-22 Gas Utilities
E-23 Telephone and Telegraph
E-24 Water Utilities
E-53 Construction
E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54 Hospital Administrators
H-55 Nursing Service and Nursing Education
H-56 Supervisory Personnel in the Dietary Department
H-57 Supervisory Personnel in the Engineering and Maintenance Department
H-58 Supervisory Personnel in the Business Office and Purchasing Department
H-59 Supervisory Personnel in the Medical Records Department
H-60 Supervisory Personnel in the Institutional Care Departments
H-61 Personnel Directors
H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TRANSPORTATION INDUSTRY IN PENNSYLVANIA

M-78

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TRANSPORTATION INDUSTRY IN PENNSYLVANIA

M-78

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

- Top Management. 2
- Middle Management 2
- First-Line Supervision. 3

TOP MANAGEMENT 3

- Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 9

- Educational Needs Within Areas of Managerial Responsibility 9
- Background Information of Middle Managers 16
  - Personal, Educational, and Professional Background 16
  - Methods of Updating. 17
  - Company Attitudes Toward Education 19

FIRST-LINE SUPERVISION 21

- Educational Needs 21
- Background Information of First-Line Supervisors. 22
  - Personal, Educational, and Professional Background 22
  - Methods of Updating. 23
  - Company Attitudes Toward Education 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE TRANSPORTATION INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT. . . . 28

- Top Management. 28
- Middle Management 29
- First-Line Supervision. 30

RECOMMENDATIONS. 31

- For the University. 31
- For Business and Industry 31
- For the Individual Manager and Supervisor 32
- For Professional Associations 32

LIST OF TABLES

PAGE

1. Top Management — General Management. 5
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 6
4. Top Management — Economics 6
5. Top Management — Quantitative Methods Applied to Business and Industry. 6
6. Top Management — Industrial Relations and Personnel Management . . 7
7. Top Management -- Financial Management. 7
8. Top Management — Manufacturing and Production. 8
9. Top Management — Marketing 8
10. Top Management — International Management. 8
11. Middle Management — General Management 10
12. Middle Management — Behavioral Science and Management. 11
13. Middle Management — Communication. 11
14. Middle Management — Economics. 11
15. Middle Management — Quantitative Methods Applied to Business and Industry. 12
16. Middle Management — Computer Operations and Data Processing. . . . 12
17. Middle Management — Industrial Relations and Personnel Management. 13
18. Middle Management — Financial Management 13
19. Middle Management — Manufacturing and Production 14
20. Middle Management — Marketing. 14
21. Middle Management — Sales Management 15
22. Middle Management -- International Management 15

PAGE

23. Middle Management -- Research and Development 16

24. Middle Management — Major Fields of Study of College Graduates 16

25. Middle Management — Major Areas of Work. 17

26. Middle Management — Reasons for Not Undertaking Additional Formal Education. 17

27. Middle Management -- Educational Methods Used for Updating Within the Past Four Years. 18

28. Middle Management — Sources of Information Used in Updating. . . . 18

29. Middle Management -- Preference for Media of Course Presentation. . 19

30. Managers' Perception of Company Policy Toward Professional Development 19

31. Middle Management — Proportion of Tuition Paid 20

32. Middle Management — Maximum Amount of Tuition Paid Per Year. . . . 20

33. First-Line Supervision Training Needs 22

34. First-Line Supervision — Major Areas of Work 23

35. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 23

36. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 24

37. First-Line Supervision — Sources of Information Used in Updating. 25

38. First-Line Supervision -- Preference for Media of Course Presentation. 26

39. Supervisors' Perception of Company Policy Toward Professional Development 26

40. First-Line Supervision — Proportion of Tuition Paid. 27

41. First-Line Supervision — Maximum Amount of Tuition Paid Per Year. 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TRANSPORTATION INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as greater proportions of sales and profits of many domestic firms come from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer opeaations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 94 managers and supervisors from 11 companies in the Transportation industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed 19 were checked by 50 percent or more of top managers as "Should Have." (Page 4)

For those they supervise, 50 percent or more of top managers said 12 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for 17 courses in the areas of general management, communication, behavioral science and management, and quantitative methods applied to business and industry, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need eight of the listed courses. (Page 10)

Only 12 percent of the middle managers had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 11 out of 16 courses. (Page 21)

Twenty-three percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the industrial category of Transportation, 14 top managers from 11 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Long-range Planning and Forecasting for Corporate Growth. . . .	83
Overall Strategy and Goals.	79
Financial Planning and Forecasting.	71
Incentives.	71
Management Development.	71
Listening Skills.	64
Personnel Policy Affecting Labor-Management Relations	64
Effective Speaking.	62
Managerial Motivation	62
Criteria and Selection of Personnel	57
Working Effectively with Individuals and Groups	57
Personnel Policy Affecting Employment Practices	55
Communication in the Organization	54
Effective Written Communications.	54
Fundamentals of Financial Reporting and Statement Analysis. . .	54
Policy Formation.	54
Impact of Government Legislation and Controls on Business . . .	50
Improving Decision Making of Managers	50
Industrial Organization and Administration.	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Written Communications.	85
Communication in the Organization	77
Working Effectively with Individuals and Groups	71
Effective Speaking.	69
Human Aspect of Management.	62
Managerial Motivation	62
Performance Appraisal and Counseling Techniques	58
Listening Skills.	57
Fundamentals of Financial Reporting and Statement Analysis. . .	54
Capital Budgeting	50
Criteria and Selection of Personnel	50
Management Development.	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Long-range Planning and Forecasting for Corporate Growth.	83	91	25
Overall Strategy and Goals . .	79	79	36
Policy Formation	54	85	38
Improving Decision Making of Managers.	50	92	42
Industrial Organization and Administration	50	79	21
Impact of Government Legislation and Controls on Business	50	79	0
Management Reporting Systems .	46	84	31
Effective Utilization of Manpower Resources and Allocation	46	61	31
Managing Major Change in Organizations.	43	79	14
Ethical Considerations in Business	38	76	23
Impact of Computer Technology.	31	54	31
Impact of Science and Technology on Business Management.	14	57	7
Management of Research and Development.	14	43	21
Impact of Multinational Aspects of Planning and Control.	14	14	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Managerial Motivation.	62	85	62
Working Effectively with Individuals and Groups . . .	57	86	71
Communication in the Organization	54	92	77
Human Aspect of Management . .	46	77	62
Creativity and Innovation. . .	36	72	43
Political, Social, and Cultural Trends and Their Impact on Business Management	21	64	21

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Listening Skills	64	93	57
Effective Speaking	62	93	69
Effective Written Communications	54	77	85
Effective Reading Skills . . .	46	84	46

TABLE 4

ECONOMICS
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	36	57	21
Comparative Economic Systems .	14	21	14

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Survey Course on Quantitative Methods.	36	57	21
Statistical Decision Theory. .	33	58	25

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	71	92	50
Incentives	71	85	29
Personnel Policy Affecting Labor-Management Relations .	64	85	29
Criteria and Selection of Personnel.	57	86	50
Personnel Policy Affecting Employment Practices	55	82	36
Personnel Policy Affecting Wage and Salary Structure. .	46	61	38
Performance Appraisal and Counseling Techniques. . . .	42	67	58

TABLE 7

FINANCIAL MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Financial Planning and Forecasting.	71	85	14
Fundamentals of Financial Reporting and Statement Analysis	54	85	54
Managerial Accounting and Budgeting.	46	77	38
Capital Budgeting.	42	75	50

TABLE 8

MANUFACTURING AND PRODUCTION
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	38	84	23
Operations Planning and Control.	25	33	33
Operations Research Applied to Production	8	25	17

TABLE 9

MARKETING
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Logistics Planning	23	46	8
Marketing Research	15	38	15
Product Planning	15	23	15
Pricing.	8	25	25

TABLE 10

INTERNATIONAL MANAGEMENT
(N=13)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
International Understanding. .	23	31	8
International Economic Analysis	15	23	8

MIDDLE MANAGEMENT

In the industrial category of Transportation, 26 middle managers from 11 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	84
Effective Communication in the Organization	77
Effective Reading Skills	77
Working Efficiently with Individuals	77
Supervisory Training and Employee Development	72
Business Letter Writing	68
Criteria and Selection of Personnel for Promotion	65
Effective Report Writing	64
Listening Skills	64
Performance Appraisal and Counseling Techniques	61
Creativity and Innovation	58
Human Aspect of Management	58
Replacement Management	57
Conference Leadership	56
Oral Presentation of Reports	56
Improving Decision Making of Managers	52
Management Psychology	52

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Working Efficiently with Individuals	65
Listening Skills	60
Effective Communication in the Organization	58
Performance Appraisal and Counseling Techniques	57
Business Letter Writing	52
Management Development	52
Supervisory Training and Employee Development	52
Effective Reading Skills	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Transportation category.

TABLE 11

GENERAL MANAGEMENT
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	84	100	52
Working Efficiently with Individuals	77	96	65
Supervisory Training and Employee Development	72	92	52
Criteria and Selection of Personnel for Promotion	65	88	35
Performance Appraisal and Counseling Techniques	61	87	57
Principles and Analysis of Office Systems	48	76	20
Effective Utilization of Manpower Resources and Allocation	44	76	44
Analyzing Organizational Behavior	42	84	46
Long-range Planning and Forecasting for Corporate Growth	42	59	33
Impact of Government Legislation and Controls on Business	25	58	17
Impact of Computer Technology	17	39	22
Impact of Science and Technology on Business Management	13	61	13
The Application of Information Technology on Decision Making	9	35	17

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management . .	58	77	42
Creativity and Innovation. . .	58	71	42
Management Psychology.	52	72	20
Understanding Group Interaction and Behavior.	48	83	43
Social and Cultural Trends and Their Impact on Business Management.	36	56	12
Industrial Sociology	32	56	24
Impact of Consumer Behavior on Management	25	42	8

TABLE 13

COMMUNICATION
(N=26)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	77	92	58
Effective Reading Skills . . .	77	89	50
Business Letter Writing. . . .	68	96	52
Listening Skills	64	96	60
Effective Report Writing . . .	64	88	48
Oral Presentation of Reports .	56	88	32
Conference Leadership.	56	80	40

TABLE 14

ECONOMICS
(N=23)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	26	65	13
Economics of Production and Cost	26	43	13
The Economic Systems of the United States.	22	61	9
Fundamentals of Economics. . .	19	52	19
The Price Mechanism.	18	36	9
International Economics. . . .	10	24	5
Comparative Economic Systems .	9	36	5
Economics of Technology and Innovation	5	29	5

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=23)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Replacement Management	57	70	26
Improving Decision Making of Managers	52	87	35
Statistical Decision Theory	32	64	18
Linear Programming	27	54	23
Review of Basic Mathematics	27	45	23
Dynamic Programming	26	35	13
Applying Program Evaluation and Review Techniques (PERT)	24	53	10
Inventory Management	22	44	9
Statistical Procedures and Methods	14	41	5
Probability Theory	9	23	5
Waiting Lines	5	23	0
Analytic Geometry	0	10	5
Calculus of Finite Differences	0	5	0
Matrix Algebra	0	0	0
Calculus of Infinite Series	0	0	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=22)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing	27	59	23
Fundamentals of Programming for Computer Operations	27	54	18
Applying the Computer to Problems of Business and Management	23	50	14
Mathematics for Digital Computers	14	23	9

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Maintaining Efficient and Up-To-Date Personnel Records. .	73	93	27
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	72	100	44
Management and Labor Relations	65	83	35
Job Analysis and Job Evaluation Methods	59	88	24
In-plant Training.	56	87	38
Employee Benefit Plans	50	63	13
Industrial Safety and Medical Services	44	69	13
Salary and Wage Administration	35	64	18

TABLE 18

FINANCIAL MANAGEMENT
(N=9)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	67	78	33
New Developments in Equipment Replacement Policy	63	88	25
Fundamentals of Financial Reporting and Statement Analysis	50	50	13
Managerial Accounting.	44	66	11
Taxes.	33	66	0
Financial Planning and Forecasting.	25	75	0

TABLE 19

MANUFACTURING AND PRODUCTION
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Maintenance Planning and Control.	67	67	17
Value Analysis	50	67	0
Methods Analysis and Work Simplification	40	60	20
Automation	40	60	0
Materials Handling	40	40	0
Inventory Management	25	50	0
Quality Control.	25	25	0
Production Planning and Control Managmment	20	40	0
Organization and Management of Purchasing Operations. . . .	20	40	0
Engineering Economy.	0	25	0

TABLE 20

MARKETING
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
Marketing Management	50	67
Fundamentals of Marketing.	40	65
Packaging Design and Development	40	40
Brand Marketing.	40	40
Marketing Research	33	83
Physical Distribution Methods.	20	60
Product Planning	20	40
Fundamentals of Pricing.	20	20
Application of Management Science and Computers to Marketing Problems.	20	20

No one indicated any need on the part of his subordinates for any of the courses.

TABLE 21

SALES MANAGEMENT
(N=8)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	63	88	13
Training of Field Salesmen . .	50	88	13
Selection and Evaluation of Field Salesmen	38	88	13
Supervision of Field Salesmen.	38	76	13
Compensation of Field Salesmen	38	76	13

TABLE 22

INTERNATIONAL MANAGEMENT
(N=3)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Commercial Policy and Trade Control.	33	66	0
United States Foreign Economic Policy.	33	33	33
Monetary Exchange Problems . .	33	33	0
International Understanding. .	33	33	0
International Law.	33	33	0
International Economic Organizations.	33	33	0
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	33	33	0
International Economic Analysis	33	33	0
Sources of Funds: Financing of Day-To-Day Transactions. . .	33	33	0
Appraising and Developing Foreign Markets.	33	33	0

TABLE 23

RESEARCH AND DEVELOPMENT
(N=3)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
Evaluation of the Research and Development Programs	33	33
Planning Budgeting and Control of Projects	33	33
Guidelines for Selecting and Appraising New Projects	33	33
Supervision and Management of Research Services	33	33
Building Research and Development Teams	33	33

No need for any of the courses was indicated for the subordinates.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Fifty-four percent (N=14) of the 26 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Eighty-eight percent (N=23) had completed high school, 12 percent (N=3) had the bachelor's degree, and four percent (N=1) had the master's degree. No one had the doctorate. Twenty-seven percent (N=7) went to business school and 23 percent (N=6) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Agriculture	0	1
Business Administration	1	0
Education	1	0
Liberal Arts	1	0
Total	3	1

The major areas of work for the middle managers in Transportation are shown below:

TABLE 25

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	9	35
Maintenance	1	4
Marketing and Sales	2	8
Traffic and Transportation	14	53
Total	26	100

Methods of Updating

Sixty-eight percent (N=17) of the middle managers would take a credit course and 81 percent (N=21) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. One manager planned to enroll for the bachelor's degree in business administration.

Eighty-eight percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Cannot afford it	7	30
Don't have the time	6	28
Not interested	3	13
Live too far from educational center	2	8
Not a high school graduate	1	4
Other (not specified)	4	17
Total	23	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=26)

	Number Managers	Percent Managers
Company in-service training courses.	15	58
Managerial development within company.	12	46
Workshops or seminars on managerial topics	9	35
Correspondence courses	4	15
Attendance at regional or national meetings of professional societies	3	12
Short refresher courses at colleges or universities. . .	1	4
High school courses.	1	4

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING (N=23)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal).	83	17	0	0	0
In-plant reports and bulletins. .	70	17	4	9	0
Subordinate-superior discussions or meetings	68	18	14	0	0
Company in-service courses. . . .	36	27	5	9	23
Business reports.	35	39	17	9	0
Management journals	29	37	19	10	5
Lectures, conferences, workshops, and seminars.	14	36	18	14	18
Technical books, reports, abstracts, and indexes.	14	19	33	24	10
Manufacturer's literature	10	45	20	25	0
Scientific and technical journals	10	19	19	42	10
Professional society meetings . .	5	14	19	48	14
Use of consultants.	5	5	15	55	20
College and university evening courses	5	5	14	53	23
College and university day courses	5	0	5	76	14

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION (N=26)

	Number Managers	Percent Managers
Correspondence courses	16	62
Programmed instruction	12	46
Courses recorded on tapes	10	38
Courses recorded on records	6	23
Educational television	5	19
Two-way telephone courses	3	12
Other (not specified)	2	8

Company Attitudes Toward Education

Of the 23 managers responding to a question on the attitude of their immediate superior toward continuing their education, 70 percent (N=16) said the superior encouraged them and 30 percent (N=7) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT (N=24)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	90	5	0	5
Attend professional meetings	61	24	5	10
Enroll for advanced work	59	27	0	14
Hold office in professional societies	54	18	5	23
Attend seminars or workshops away from the company	52	24	5	19
Educational leave of absence	25	17	8	50
Write technical and professional papers	15	30	5	50

Fifty-four percent of the middle managers indicated that they were employed by companies which provided in-service training; 42 percent were not, and four percent did not know. Sixty-six percent said the training was entirely on company time, 13 percent said it was partly on company time, no one said it was not on company time, and 21 percent did not know.

Thirty-eight percent reported that their company had an educational assistance plan. Forty-six percent said it did not and 15 percent did not know. Forty-two percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 13 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	2
About 3/4	0
About 2/3	0
About 1/2	5
About 1/3	1
Less than 1/3	2
Don't know	3
Total	13

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	1
251 - 300	0
201 - 250	2
151 - 200	7
101 - 150	0
51 - 100	0
50 or less	0
Don't know	3
Total	13

When asked about the effect of available company educational assistance in motivating them to undertake further education, 23 percent of the middle managers said it had strongly encouraged them, 54 percent said it had partially influenced them, and 23 percent said it had no effect. There is an inconsistency here: while 77 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and only one was planning to enroll. However, some who had completed their educational objective may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Transportation, 56 first-line supervisors from 11 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 56 first-line supervisors in the category of Transportation were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job	75
Leadership	75
Human Aspect of Management	66
Supervisor's Role in Employee Discipline	66
Evaluation of Employee Performance	64
The Tools and Techniques of Effective Supervision	63
Communications	58
Decision Making	58
Employee Training	55
Safety	55
Labor Relations	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=56)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . . .	42	75	52	93
Supervisor's Role in Employee Discipline .	37	66	48	86
The Tools and Techniques of Effective Supervision.	35	63	50	90
Decision Making.	32	58	45	82
Supervisor's Role in Company Economics . .	27	48	50	89
Inter-Departmental Cooperation	23	41	46	82
Employee Training and Evaluation				
Evaluation of Employee Performance	36	64	49	87
Employee Training.	31	55	48	85
Safety	30	55	48	88
The Supervisor and the Union				
Labor Relations.	28	50	49	88
Grievance Procedure and Arbitration. . . .	24	44	43	79
Labor Relations Legislation.	20	36	38	68
Developing Those We Supervise				
Leadership	41	75	53	97
Human Aspect of Management	37	66	53	95
Communications	32	58	46	83
Developing the Work Team	26	47	47	85

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty-one percent (N=23) of the first-line supervisors were 40 years of age or younger. Eighty-two percent (N=46) were high school graduates, four percent (N=2) had the bachelor's degree, and no one had the master's degree or the doctorate. Nine percent (N=5) had gone to business school and 27 percent (N=15) to trade school.

The two supervisors who had the bachelor's degree had majored in business administration.

Below is a listing of the major areas of work for the first-line supervisors in Transportation:

TABLE 34

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration.	7	13
Engineering	1	2
Finance	1	2
Industrial Relations.	3	6
Maintenance	6	11
Marketing and Sales	2	4
Service (yard and labor personnel,etc.)	4	7
Traffic and Transportation.	27	49
Other (not specified)	3	6
Total.	54	100

Methods of Updating

Sixty-five percent (N=36) of the first-line supervisors would take a credit course and 75 percent (N=41) would take a non-credit course if they were offered locally.

One supervisor was currently enrolled for the associate degree. Six supervisors planned to enroll: three for the associate degree, one for the bachelor's, and two for the master's. The major fields of study were: six in business administration and one in education.

For the 46 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	16	35
Cannot afford it.	16	34
Not a high school graduate.	4	9
Not interested.	4	9
Job demands no more education	3	7
Live too far from educational center. .	1	2
Other (not specified)	2	4
Total.	46	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=56)

	Number Supervisors	Percent Supervisors
Company in-service training courses.	32	57
Managerial development within company.	24	43
Workshops or seminars on managerial topics	17	30
Correspondence courses	7	12
Attendance at regional or national meetings of professional societies.	4	7
Short refresher courses at colleges or universities	4	7
High school courses to improve job performance . .	2	4
Workshops or seminars in liberal arts or humanities	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING
(N=52)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins . .	64	18	4	10	4
Discussion with company personnel (informal or formal)	59	29	6	4	2
Subordinate-superior discussions or meetings.	51	27	12	8	2
Management journals.	31	35	18	10	6
Company in-service courses	25	31	16	12	16
Manufacturer's literature.	24	18	25	29	4
Technical books, reports, abstracts, and indexes	22	20	20	36	2
Business reports	14	50	12	24	0
Lectures, conferences, workshops, and seminars	12	34	26	26	2
Scientific and technical journals.	12	25	14	47	2
Use of consultants	4	6	18	66	6
Professional society meetings. . .	4	4	26	66	0
College and university evening courses.	2	4	4	82	8
College and university day courses.	0	4	2	90	4

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=56)

	Number Supervisors	Percent Supervisors
Correspondence courses	33	59
Programmed instruction	23	41
Educational television	13	23
Courses recorded on tapes.	8	14
Courses recorded on records.	6	11
Two-way radio courses.	3	5
Two-way telephone courses.	1	2
Other (not specified).	2	4

Company Attitudes Toward Education

A total of 51 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Sixty-five percent (N=33) said the superior encouraged them; 35 percent (N=18) said he was noncommittal. No one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table:

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=52)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	88	2	2	8
Enroll for advanced work	68	18	0	14
Attend professional meetings	68	15	2	15
Hold office in professional societies	64	12	5	19
Attend seminars or workshops away from the company.	43	20	2	35
Write technical and professional papers. .	40	9	5	46
Educational leave of absence.	15	17	17	51

Seventy-seven percent of the supervisors were employed by companies which provided in-service training; 21 percent said their company did not provide it and two percent did not know. Sixty-four percent said the training was completely on company time, 18 percent said it was partly on company time, no one said it was entirely on the men's own time, and 18 percent did not know.

Forty-three percent reported that their company had an educational assistance plan; 48 percent said it did not, and nine percent did not know. Thirty-three percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 24 supervisors who answered this question, is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	1
About 3/4	0
About 2/3	0
About 1/2	8
About 1/3	1
Less than 1/3	2
Don't know.	12
Total.	24

Table 41 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 41

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300.	0
251 - 300	1
201 - 250	0
151 - 200	13
101 - 150	0
51 - 100	0
50 or less	0
Don't know.	11
Total.	25

When asked what the effect of available financial assistance was on their motivation to undertake further education, 19 percent of the supervisors said it strongly encouraged them, 31 percent said it partially influenced them, and 50 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 50 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only one of the 56 respondents was actually enrolled and six were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE TRANSPORTATION INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Transportation as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were considerably higher and more numerous.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Transportation N=14	Total Report N=705
Long-range Planning and Forecasting for Corporate Growth	83	50
Overall Strategy and Goals	79	50
Management Development	71	53
Financial Planning and Forecasting	71	*
Incentives	71	*
Listening Skills	64	*
Personnel Policy Affecting Labor-Management Relations	64	*
Effective Speaking	62	50
Managerial Motivation	62	*
Criteria and Selection of Personnel	57	*
Working Effectively with Individuals and Groups	57	*
Personnel Policy Affecting Employment Practices	55	*
Communication in the Organization	54	59
Effective Written Communications	54	50
Fundamentals of Financial Reporting and Statement Analysis	54	*
Policy Formation	54	*
Impact of Government Legislation and Controls on Business	50	*
Improving Decision Making of Managers	50	*
Industrial Organization and Administration	50	*

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Transportation N=14	Total Report N=705
Effective Written Communications	85	74
Communication in the Organization	77	65
Working Effectively with Individuals and Groups	71	66
Effective Speaking	69	67
Human Aspect of Management	62	54
Managerial Motivation	62	*
Performance Appraisal and Counseling Techniques	58	57
Listening Skills	57	62
Fundamentals of Financial Reporting and Statement Analysis	54	*
Management Development	50	56
Capital Budgeting	50	*
Criteria and Selection of Personnel	50	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Transportation and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Transportation N=26	Total Report N=1,202
Management Development	84	66
Working Efficiently with Individuals	77	65
Effective Communication in the Organization	77	64
Effective Reading Skills	77	*
Supervisory Training and Employee Development	72	53
Business Letter Writing	68	*
Criteria and Selection of Personnel for Promotion	65	*
Effective Report Writing	64	*
Listening Skills	64	*
Performance Appraisal and Counseling Techniques	61	*
Creativity and Innovation	58	*
Human Aspect of Management	58	*
Replacement Management	57	*
Conference Leadership	56	*
Oral Presentation of Reports	56	*
Improving Decision Making of Managers	52	*
Management Psychology	52	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Transportation N=26	Total Report N=1,202
Working Efficiently with Individuals	65	62
Listening Skills	60	50
Effective Communication in the Organization	58	56
Performance Appraisal and Counseling Techniques	57	*
Supervisory Training and Employee Development	52	61
Business Letter Writing	52	*
Management Development	52	*
Effective Reading Skills	50	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Transportation N=56	Total Report N=1,713
Fundamentals of the Supervisor's Job	75	64
Leadership	75	57
Human Aspect of Management	66	53
Supervisor's Role in Employee Discipline	66	*
Evaluation of Employee Performance	64	*
The Tools and Techniques of Effective Supervision	63	55
Communications	58	51
Decision Making	58	54
Employee Training	55	*
Safety	55	*
Labor Relations	50	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

AC003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TRANSPORTATION EQUIPMENT INDUSTRY IN PENNSYLVANIA

M-79

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN THE
TRANSPORTATION EQUIPMENT INDUSTRY
IN PENNSYLVANIA

M-79

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION . . . 1

SURVEY PROCEDURES . . . 2

SUMMARY . . . 2

- Top Management . . . 2
- Middle Management . . . 2
- First-Line Supervision . . . 3

TOP MANAGEMENT . . . 3

- Educational Needs Within Areas of Managerial Responsibility . . . 3

MIDDLE MANAGEMENT . . . 8

- Educational Needs Within Areas of Managerial Responsibility . . . 8
- Background Information of Middle Managers . . . 16
  - Personal, Educational, and Professional Background . . . 16
  - Methods of Updating . . . 17
  - Company Attitudes Toward Education . . . 19

FIRST-LINE SUPERVISION . . . 21

- Educational Needs . . . 21
- Background Information of First-Line Supervisors . . . 22
  - Personal, Educational, and Professional Background . . . 22
  - Methods of Updating . . . 23
  - Company Attitudes Toward Education . . . 26

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE TRANSPORTATION EQUIPMENT INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT . . . 28

- Top Management . . . 28
- Middle Management . . . 29
- First-Line Supervision . . . 30

RECOMMENDATIONS . . . 31

- For the University . . . 31
- For Business and Industry . . . 31
- For the Individual Manager and Supervisor . . . 32
- For Professional Associations . . . 32

LIST OF TABLES

PAGE

1. Top Management — General Management 5

2. Top Management — Behavioral Science and Management. 5

3. Top Management — Communications Techniques. 6

4. Top Management -- Economics. 6

5. Top Management — Quantitative Methods Applied to Business and Industry 6

6. Top Management — Industrial Relations and Personnel Management 7

7. Top Management — Financial Management 7

8. Top Management — Manufacturing and Production 7

9. Top Management — Marketing. 8

10. Top Management — International Management 8

11. Middle Management — General Management. 10

12. Middle Management — Behavioral Science and Management 10

13. Middle Management — Communication 11

14. Middle Management — Economics 11

15. Middle Management — Quantitative Methods Applied to Business and Industry 12

16. Middle Management — Computer Operations and Data Processing . . 12

17. Middle Management — Industrial Relations and Personnel Management 13

18. Middle Management — Financial Management. 13

19. Middle Management — Manufacturing and Production. 14

20. Middle Management — Marketing 14

21. Middle Management — International Management. 15

PAGE

22. Middle Management — Research and Development. 15

23. Middle Management — Major Fields of Study of College Graduates. 16

24. Middle Management — Major Areas of Work 16

25. Middle Management — Reasons for Not Undertaking Additional Formal Education 17

26. Middle Management — Educational Methods Used for Updating Within the Past Four Years 17

27. Middle Management — Sources of Information Used in Updating . . 18

28. Middle Management — Preference for Media of Course Presentation 18

29. Managers' Perception of Company Policy Toward Professional Development. 19

30. Middle Management — Proportion of Tuition Paid. 20

31. Middle Management — Maximum Amount of Tuition Paid Per Year . . 20

32. First-Line Supervision Training Needs. 22

33. First-Line Supervision — Major Fields of Study of College Graduates. 23

34. First-Line Supervision — Major Areas of Work. 23

35. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 24

36. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 24

37. First-Line Supervision — Sources of Information Used in Updating 25

38. First-Line Supervision — Preference for Media of Course Presentation 26

39. Supervisors' Perception of Company Policy Toward Professional Development. 26

40. First-Line Supervision — Proportion of Tuition Paid 27

41. First-Line Supervision — Maximum Amount of Tuition Paid Per Year 27

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TRANSPORTATION EQUIPMENT INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 94 managers and supervisors from six companies in the Transportation Equipment industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, 19 were checked by 50 percent or more of top managers as "Should Have." (Page 4)

For those they supervise, 50 percent or more of top managers said nine courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in areas of general management, behavioral science and management, and communication, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need two of the listed courses. (Page 9)

Only 13 percent had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-20)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were respresented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 11 out of 16 courses. (Page 22)

Twenty-three percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-27)

TOP MANAGEMENT

In the industrial category of Transportation Equipment, 21 top managers from six companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more are listed at the top of Page 4.

	"Should Have" Percent
Effective Written Communications.	84
Effective Speaking.	79
Effective Utilization of Manpower Resources and Allocation. . .	67
Communication in the Organization	67
Listening Skills.	65
Management Development.	65
Improving Decision Making of Managers	61
Performance Appraisal and Counseling Techniques	61
Personnel Policy Affecting Labor-Management Relations	59
Planning and Utilization of Physical Facilities	59
Effective Reading Skills.	58
Incentives.	58
Management Reporting Systems.	55
Industrial Organization and Administration.	55
Long-range Planning and Forecasting for Corporate Growth. . . .	53
Managerial Motivation	53
Creativity and Innovation	53
Working Effectively with Individuals and Groups	50
Statistical Decision Theory	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Creativity and Innovation	93
Listening Skills.	82
Effective Written Communications.	74
Effective Speaking.	74
Effective Reading Skills.	74
Communication in the Organization	72
Criteria and Selection of Personnel	63
Working Effectively with Individuals and Groups	50
Effective Utilization of Manpower Resources and Allocation. . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=20)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Utilization of Manpower Resources and Allocation	67	89	50
Improving Decision Making of Managers.	61	78	39
Industrial Organization and Administration	55	95	40
Management Reporting Systems .	55	80	40
Long-range Planning and Forecasting for Corporate Growth	53	85	37
Management of Research and Development.	47	71	24
Policy Formation	45	75	30
Impact of Computer Technology.	41	76	29
Managing Major Change in Organizations.	39	72	28
Impact of Science and Technology on Business Management.	33	77	28
Overall Strategy and Goals . .	26	73	5
Ethical Considerations in Business	17	84	44
Impact of Government Legislation and Controls on Business	11	61	22
Impact of Multinational Aspects of Planning and Control.	11	22	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=20)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	67	84	72
Managerial Motivation.	53	85	32
Creativity and Innovation. . .	53	73	93
Working Effectively with Individuals and Groups . . .	50	83	50
Human Aspect of Management . .	45	80	40
Political,Social,and Cultural Trends and Their Impact on Business Management.	19	57	25

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	84	89	74
Effective Speaking	79	90	74
Listening Skills	65	89	82
Effective Reading Skills . . .	58	79	74

TABLE 4

ECONOMICS
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	22	55	17
Comparative Economic Systems .	12	53	18

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. .	50	94	38
Survey Course on Quantitative Methods.	18	77	24

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=20)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	65	95	40
Performance Appraisal and Counseling Techniques. . . .	61	89	33
Personnel Policy Affecting Labor-Management Relations .	59	83	47
Incentives	58	84	21
Criteria and Selection of Personnel.	47	68	63
Personnel Policy Affecting Employment Practices	29	47	29
Personnel Policy Affecting Wage and Salary Structure. .	28	56	22

TABLE 7

FINANCIAL MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Capital Budgeting.	44	77	39
Managerial Accounting and Budgeting.	41	70	41
Fundamentals of Financial Reporting and Statement Analysis	24	77	35
Financial Planning and Forecasting.	21	53	21

TABLE 8

MANUFACTURING AND PRODUCTION
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	59	71	41
Operations Planning and Control.	41	70	41
Operations Research Applied to Production	35	64	35

TABLE 9

MARKETING
(N=17)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Pricing.	35	53	24
Marketing Research	18	42	18
Product Planning	12	53	35
Logistics Planning	6	24	6

TABLE 10

INTERNATIONAL MANAGEMENT
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
International Understanding.	7	20
International Economic Analysis.	0	14

None of the top managers in the Transportation Equipment industry reported that those they supervise needed either of the above courses.

MIDDLE MANAGEMENT

In the industrial category of Transportation Equipment, 30 middle managers from six companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Effective Communication in the Organization	63
Management Development	62
Working Efficiently with Individuals	59
Supervisory Training and Employee Development	56
Oral Presentation of Reports	52
Creativity and Innovation	52

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Supervisory Training and Employee Development	56
Management Development	54

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Transportation Equipment category.

TABLE 11

GENERAL MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	62	93	54
Working Efficiently with Individuals.	59	100	45
Supervisory Training and Employee Development	56	88	56
Effective Utilization of Manpower Resources and Allocation	46	78	39
Performance Appraisal and Counseling Techniques. . . .	40	80	44
Criteria and Selection of Personnel for Promotion. . .	36	88	24
Principles and Analysis of Office Systems	22	74	35
Impact of Science and Technology on Business Management.	20	72	32
Analyzing Organizational Behavior	19	63	30
Long-range Planning and Forecasting for Corporate Growth	16	40	20
Impact of Computer Technology.	13	52	26
The Application of Information Technology on Decision Making	12	50	15
Impact of Government Legislation and Controls on Business	0	42	15

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=24)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Creativity and Innovation . .	52	91	48
Human Aspect of Management . .	48	91	39
Understanding Group Interaction and Behavior.	35	78	35
Management Psychology.	25	79	21
Industrial Sociology	18	45	9
Social and Cultural Trends and Their Impact on Business Management	18	41	14
Impact of Consumer Behavior on Management	9	18	9

TABLE 13

COMMUNICATION
(N=25)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	63	92	46
Oral Presentation of Reports .	52	82	48
Effective Report Writing . . .	48	84	40
Effective Reading Skills . . .	46	84	46
Business Letter Writing. . . .	33	83	42
Listening Skills	33	75	42
Conference Leadership.	26	65	30

TABLE 14

ECONOMICS
(N=24)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Economics. . .	17	38	13
Economics of Production and Cost	13	65	26
The Price Mechanism.	9	54	9
Economic Trends.	9	35	13
Economics of Technology and Innovation	9	31	9
International Economics. . . .	4	13	4
The Economic Systems of the United States.	0	32	0
Comparative Economic Systems .	0	17	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=24)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	48	78	26
Review of Basic Mathematics. .	39	61	48
Replacement Management	25	58	17
Statistical Procedures and Methods.	23	59	23
Statistical Decision Theory. .	23	59	14
Inventory Management	22	52	13
Probability Theory	19	48	19
Applying Program Evaluation and Review Techniques (PERT)	17	46	17
Analytic Geometry.	14	37	14
Matrix Algebra	5	24	14
Calculus of Infinite Series. .	4	21	4
Dynamic Programming.	4	17	4
Calculus of Finite Differences	4	13	4
Linear Programming	0	13	0
Waiting Lines.	0	9	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING
(N=22)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Mathematics for Digital Computers.	20	40	20
Applying the Computer to Problems of Business and Management	19	43	24
Fundamentals of Programming for Computer Operations. . .	18	45	23
Data Systems and Processing. .	18	41	23

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
In-plant Training.	55	73	18
Maintaining Efficient and Up-To-Date Personnel Records. .	50	50	30
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	42	67	25
Management and Labor Relations	36	63	36
Job Analysis and Job Evaluation Methods	33	75	8
Industrial Safety and Medical Services	30	40	20
Employee Benefit Plans	20	30	10
Salary and Wage Administration	18	36	9

TABLE 18

FINANCIAL MANAGEMENT
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
New Developments in Equipment Replacement Policy	55	64	9
Budgets.	36	45	18
Managerial Accounting.	22	33	0
Fundamentals of Financial Reporting and Statement Analysis	11	22	0
Taxes.	11	11	0
Financial Planning and Forecasting.	0	11	0

TABLE 19

MANUFACTURING AND PRODUCTION
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Automation	47	82	47
Methods Analysis and Work Simplification	44	82	56
Quality Control.	44	66	33
Inventory Management	43	64	21
Value Analysis	41	65	41
Production Planning and Control Management	29	58	41
Engineering Economy.	28	84	22
Maintenance Planning and Control.	25	56	25
Materials Handling	25	50	38
Organization and Management of Purchasing Operations. . . .	18	65	18

TABLE 20

MARKETING
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Product Planning	14	28	14
Fundamentals of Pricing. . . .	14	28	0
Marketing Management	0	14	0
Fundamentals of Marketing. . .	0	14	0
Marketing Research	0	14	0
Physical Distribution Methods.	0	14	0

None of the managers indicated a need for the remaining three courses for themselves or those they supervise.

SALES MANAGEMENT
(N=6)

None of the middle managers in the Transportation Equipment industry indicated a need for any of the five courses in Sales Management for themselves or for those they supervise.

TABLE 21

INTERNATIONAL MANAGEMENT
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
Commercial Policy and Trade Control.	17	34
United States Foreign Economic Policy.	17	34
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade.	17	17
Appraising and Developing Foreign Markets. . .	17	17

No managers reported a need for themselves for five other courses, and none of the middle managers indicated a need for any of the courses listed on the part of those they supervise.

TABLE 22

RESEARCH AND DEVELOPMENT
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent
Planning Budgeting and Control of Projects . .	30	50
Building Research and Development Teams. . . .	22	44
Supervision and Management of Research Services	20	60
Evaluation of the Research and Development Programs	20	50
Guidelines for Selecting and Appraising New Projects	20	50

None of the middle managers reported a need for any of the courses on the part of those they supervise.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Seventeen percent (N=5) of the 30 middle managers were 40 years of age or younger. Ninety-three percent (N=28) had completed high school and 13 percent (N=4) had the bachelor's degree. One person had the master's degree and one had the doctorate. Three percent (N=1) went to business school and 30 percent (N=9) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 23

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's	Number Doctor's
Business Administration.	1	1	0
Engineering.	1	0	0
Liberal Arts	2	0	0
Psychology	0	0	1
Total	4	1	1

The major areas of work for the middle managers in the Transportation Equipment industry are shown below:

TABLE 24

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	6	20
Engineering.	11	38
Finance.	1	3
Industrial Relations	1	3
Maintenance.	2	7
Manufacturing.	4	13
Production Control — Records.	2	7
Purchasing and Procurement	1	3
Research and Development	1	3
Service (yard and labor personnel, etc.) . .	1	3
Total	30	100

Methods of Updating

Sixty percent (N=18) of the middle managers would take a credit course and 67 percent (N=20) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the associate degree and one for the master's. One planned to enroll for the associate degree.

Sixty-seven percent had no plans for further degree work and their reasons are given below:

TABLE 25

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time	6	30
Not interested	4	20
Can do better on my own	3	15
Job demands no more education	2	10
Cannot afford it	2	10
Other (not specified)	3	15
Total	20	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 26

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=30)

	Number Managers	Percent Managers
Company in-service training courses	14	47
Managerial development within company	13	43
Attendance at regional or national meetings of professional societies	11	37
Workshops or seminars on managerial topics	9	30
Short refresher courses at colleges or universities	3	10
Correspondence courses	2	7
High school courses	1	3

Many sources of information were used by the middle managers to keep up with new developments. Table 27 lists these sources.

TABLE 27

SOURCES OF INFORMATION USED IN UPDATING
(N=29)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	59	41	0	0	0
In-plant reports and bulletins	54	42	4	0	0
Subordinate-superior discussions or meetings	33	60	7	0	0
Manufacturer's literature	31	34	31	4	0
Technical books, reports, abstracts, and indexes	25	35	36	4	0
Company in-service courses	16	52	4	8	20
Lectures, conferences, workshops, and seminars	15	44	19	7	15
Professional society meetings	12	20	40	28	0
Scientific and technical journals	11	52	15	15	7
Management journals	8	52	28	8	4
Use of consultants	8	21	25	38	8
College and university evening courses	8	8	4	67	13
Business reports	7	45	33	15	0
College and university day courses	0	0	4	96	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses.

TABLE 28

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=30)

	Number Managers	Percent Managers
Programmed instruction	14	47
Correspondence courses	12	40
Educational television	7	23
Courses recorded on tapes	5	17
Courses recorded on records	5	17
Two-way radio courses	3	10
Two-way telephone courses	3	10

Company Attitudes Toward Education

Of the 28 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 54 percent (N=15) said the superior encouraged them and 46 percent (N=13) said the superior was noncommittal. No one reported that the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 29

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=29)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Enroll for advanced work	92	8	0	0
Attend company training courses.	89	11	0	0
Attend professional meetings	81	19	0	0
Hold office in professional societies. .	61	27	0	12
Attend seminars or workshops away from the company.	59	33	4	4
Write technical and professional papers . . .	46	35	4	15
Educational leave of absence.	10	14	14	62

Fifty-nine percent of the middle managers indicated that they were employed by companies which provided in-service training; 38 percent were not, and three percent did not know. Seventy-eight percent said the training was entirely on company time, 11 percent said it was partly on company time, four percent said it was not on company time, and seven percent did not know.

Sixty-three percent reported that their company had an educational assistance plan. Thirty percent said it did not and seven percent did not know. Fifty-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 18 managers who responded to this question, follows:

TABLE 30

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	12
About 3/4	0
About 2/3	0
About 1/2	0
About 1/3	0
Less than 1/3	0
Don't know	6
Total	18

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 31

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	4
251 - 300	0
201 - 250	0
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know	13
Total	17

When asked about the effect of available company educational assistance in motivating them to undertake further education, 17 percent of the middle managers said it had strongly encouraged them, 28 percent said it had partially influenced them, and 55 percent said it had no effect. There is an inconsistency here: while 45 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and one was planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Transportation Equipment, 43 first-line supervisors from six companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 43 first-line supervisors in the category of Transportation Equipment were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job.	70
Leadership.	63
Human Aspect of Management.	62
The Tools and Techniques of Effective Supervision	60
Decision Making	60
Supervisor's Role in Employee Discipline.	55
Communications.	55
Safety.	53
Labor Relations	52
Grievance Procedure and Arbitration	50
Supervisor's Role in Company Economics.	50

Table 32 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 32

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=43)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job. .	30	70	39	91
Decision Making	26	60	40	93
The Tools and Techniques of Effective Supervision	25	60	39	93
Supervisor's Role in Employee Discipline.	23	55	38	91
Supervisor's Role in Company Economics.	21	50	39	93
Inter-Departmental Cooperation.	19	44	40	93
Employee Training and Evaluation				
Safety.	21	53	35	88
Evaluation of Employee Performance. . .	20	48	36	86
Employee Training	15	36	35	84
The Supervisor and the Union				
Labor Relations	22	52	35	83
Grievance Procedure and Arbitration . .	21	50	33	79
Labor Relations Legislation	10	24	29	69
Developing Those We Supervise				
Leadership.	27	63	39	91
Human Aspect of Management.	26	62	38	91
Communications.	23	55	41	98
Developing the Work Team.	18	43	37	88

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Fifty-one percent (N=22) of the first-line supervisors were 40 years of age or younger. Eighty-four percent (N=36) were high school graduates, 23 percent (N=10) had the bachelor's degree, and nine percent (N=4) had the master's degree; no one had the doctorate. Five percent (N=2) had gone to business school and 16 percent (N=7) to trade school. The major fields of study for a degree are indicated at the top of page 23.

TABLE 33

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration	2	4
Engineering	7	0
Liberal Arts	1	0
Total	10	4

Below is a listing of the major areas of work for the first-line supervisors in the Transportation Equipment industry:

TABLE 34

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	1	2
Engineering	5	12
Industrial Relations	2	5
Maintenance	3	7
Manufacturing	23	55
Marketing and Sales	2	5
Production Control — Records	2	5
Purchasing and Procurement	1	2
Other (not specified)	3	7
Total	42	100

Methods of Updating

Fifty-two percent (N=22) of the first-line supervisors would take a credit course and 65 percent (N=28) would take a non-credit course if they were offered locally.

Eight supervisors were currently enrolled in degree programs: two for the associate degree, two for the bachelor's, and four for the master's. Three planned to enroll, one for the associate degree and two for the bachelor's. Major fields of study were reported by ten supervisors: seven in business administration, two in engineering, and one in law.

For the 30 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time	10	33
Cannot afford it	6	20
Not a high school graduate	4	13
Not interested	3	10
Live too far from educational center	2	7
Job demands no more education	2	7
Can do better on my own	1	3
Other (not specified)	2	7
Total	30	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=43)

	Number Supervisors	Percent Supervisors
Company in-service training courses	22	51
Managerial development within company	14	33
Workshops or seminars on managerial topics	13	30
Attendance at regional or national meetings of professional societies	11	26
Correspondence courses	8	19
Short refresher courses at colleges or universities	3	7
Workshops or seminars in liberal arts or humanities	3	7
High school courses to improve job performance	2	5

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING (N=41)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	58	32	10	0	0
In-plant reports and bulletins . .	47	44	7	0	2
Subordinate-superior discussions or meetings.	46	41	10	3	0
Manufacturer's literature	38	28	23	8	3
Management journals.	36	33	21	5	5
Company in-service courses	28	34	8	8	22
College and university evening courses.	22	11	8	45	14
Technical books, reports, abstracts, and indexes	21	32	23	21	3
Scientific and technical journals.	21	30	18	23	8
Lectures, conferences, workshops, and seminars.	18	35	26	3	18
Use of consultants	11	19	27	38	5
Business reports	8	40	26	23	3
Professional society meetings. . .	8	13	28	46	5
College and university day . . . . courses.	0	0	9	85	6

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=43)

	Number Supervisors	Percent Supervisors
Correspondence courses	24	56
Programmed instruction	17	40
Educational television	14	33
Courses recorded on records.	7	16
Courses recorded on tapes.	7	16
Two-way radio courses.	5	12
Two-way telephone courses.	2	5
Other (not specified).	2	5

Company Attitudes Toward Education

A total of 42 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-eight percent (N=20) said the superior encouraged them; 52 percent (N=22) said he was noncommittal, and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either lack of policy or lack of communication.

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=40)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	100	0	0	0
Enroll for advanced work.	80	5	0	15
Attend professional meetings.	59	15	0	26
Hold office in professional societies .	57	11	0	32
Attend seminars or workshops away from the company	48	8	8	36
Write technical and professional papers .	35	19	0	46
Educational leave of absence	15	5	18	62

Fifty-eight percent of the supervisors were employed by companies which provided in-service training; 28 percent said their company did not provide it and 14 percent did not know. Seventy-two percent said the training was completely on company time, ten percent said it was partly on company time, ten percent said it was entirely on the men's own time, and eight percent did not know.

Seventy-nine percent reported that their company had an educational assistance plan; seven percent said it did not, and 14 percent did not know. Fifty-one percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 31 supervisors who answered this question, is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	16
About 3/4	5
About 2/3	0
About 1/2	2
About 1/3	0
Less than 1/3	1
Don't know	7
Total	31

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 41

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	18
251 - 300	0
201 - 250	5
151 - 200	0
101 - 150	0
51 - 100	0
50 or less	0
Don't know	9
Total	32

When asked what the effect of available financial assistance was on their motivation to undertake further education, 34 percent of the supervisors said it strongly encouraged them, 35 percent said it partially influenced them, and 31 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 69 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only eight of the 43 respondents were actually enrolled and three were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE TRANSPORTATION EQUIPMENT INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Transportation Equipment as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied widely.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Transportation Equipment N=21	Total Report N=705
Effective Written Communications.	84	50
Effective Speaking.	79	50
Effective Utilization of Manpower Resources and Allocation.	67	*
Communication in the Organization	67	59
Listening Skills.	65	*
Management Development.	65	53
Improving Decision Making of Managers	61	*
Performance Appraisal and Counseling Techniques . . .	61	*
Personnel Policy Affecting Labor-Management Relations	59	*
Planning and Utilization of Physical Facilities . . .	59	*
Effective Reading Skills.	58	*
Incentives.	58	*
Management Reporting Systems.	55	*
Industrial Organization and Administration.	55	*
Long-range Planning and Forecasting for Corporate Growth.	53	50
Managerial Motivation	53	*
Creativity and Innovation	53	*
Working Effectively with Individuals and Groups . . .	50	*
Statistical Decision Theory	50	*
Overall Strategy and Goals.	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent Transportation Equipment N=21	 Total Report N=705
Creativity and Innovation.	93	*
Listening Skills	82	62
Effective Written Communications	74	74
Effective Speaking	74	67
Effective Reading Skills	74	62
Communication in the Organization.	72	65
Criteria and Selection of Personnel.	63	*
Working Effectively with Individuals and Groups. . .	50	66
Effective Utilization of Manpower Resources and Allocation	50	*
Performance Appraisal and Counseling Techniques. . .	*	57
Management Development	*	56
Improving Decision Making of Managers.	*	54
Human Aspect of Management	*	54

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Transportation Equipment and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent Transportation Equipment N=30	 Total Report N=1,202
Effective Communication in the Organization.	63	64
Management Development	62	66
Working Efficiently with Individuals	59	65
Supervisory Training and Employee Development. . . .	56	53
Oral Presentation of Reports	52	*
Creativity and Innovation.	52	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Transportation Equipment N=30	Total Report N=1,202
Supervisory Training and Employee Development. . . .	56	61
Management Development	54	*
Working Efficiently with Individuals	*	62
Effective Communication in the Organization.	*	56
Listening Skills	*	50

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	"Should Have" Percent	
	Transportation Equipment N=43	Total Report N=1,713
Fundamentals of the Supervisor's Job	70	64
Leadership	63	57
Human Aspect of Management	62	53
The Tools and Techniques of Effective Supervision. .	60	55
Decision Making.	60	54
Supervisor's Role in Employee Discipline	55	*
Communications	55	51
Safety	53	*
Labor Relations.	52	*
Grievance Procedure and Arbitration.	50	*
Supervisor's Role in Company Economics	50	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superior's attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

A C003500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE GAS AND ELECTRIC UTILITIES INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY
EDUCATIONAL NEEDS IN THE
GAS AND ELECTRIC UTILITIES
INDUSTRY IN PENNSYLVANIA

M-80

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

Top Management. 2
Middle Management 2
First-Line Supervision. 3

TOP MANAGEMENT 3

Educational Needs Within Areas of Managerial Responsibility 3

MIDDLE MANAGEMENT. 9

Educational Needs Within Areas of Managerial Responsibility 9
Background Information of Middle Managers 17

Personal, Educational, and Professional Background. 17
Methods of Updating 18
Company Attitudes Toward Education. 20

FIRST-LINE SUPERVISION 22

Educational Needs 22
Background Information of First-Line Supervisors. 23

Personal, Educational, and Professional Background. 23
Methods of Updating 24
Company Attitudes Toward Education. 27

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE GAS AND ELECTRIC UTILITIES INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT 29

Top Management. 29
Middle Management 30
First-Line Supervision. 31

RECOMMENDATIONS. 32

For the University. 32
For Business and Industry 32
For the Individual Manager and Supervisor 33
For Professional Associations 33

LIST OF TABLES

PAGE

1. Top Management — General Management. 5

2. Top Management — Behavioral Science and Management 5

3. Top Management — Communications Techniques 6

4. Top Management — Economics 6

5. Top Management — Quantitative Methods Applied to Business and Industry. 6

6. Top Management — Industrial Relations and Personnel Management . 7

7. Top Management — Financial Management. 7

8. Top Management — Manufacturing and Production. 8

9. Top Management — Marketing 8

10. Middle Management — General Management 10

11. Middle Management — Behavioral Science and Management. 11

12. Middle Management — Communication. 11

13. Middle Management — Economics. 12

14. Middle Management — Quantitative Methods Applied to Business and Industry. 12

15. Middle Management — Computer Operations and Data Processing. . . 13

16. Middle Management — Industrial Relations and Personnel Management. 13

17. Middle Management —Financial Management. 14

18. Middle Management — Manufacturing and Production 14

19. Middle Management — Marketing. 15

20. Middle Management — Sales Management 15

21. Middle Management — International Management 16

PAGE

22. Middle Management — Research and Development 16

23. Middle Management — Major Fields of Study of College Graduates . 17

24. Middle Management — Major Areas of Work. 17

25. Middle Management — Reasons for Not Undertaking Additional Formal Education. 18

26. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 18

27. Middle Management — Sources of Information Used in Updating. . . 19

28. Middle Management — Preference for Media of Course Presentation. 20

29. Managers' Perception of Company Policy Toward Professional Development 20

30. Middle Management — Proportion of Tuition Paid 21

31. Middle Management — Maximum Amount of Tuition Paid Per Year. . . 21

32. First-Line Supervision Training Needs 23

33. First-Line Supervision — Major Fields of Study of College Graduates 24

34. First-Line Supervision — Major Areas of Work 24

35. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education. 25

36. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years. 25

37. First-Line Supervision — Sources of Information Used in Updating 26

38. First-Line Supervision — Preference for Media of Course Presentation. 27

39. Supervisors' Perception of Company Policy Toward Professional Development 27

40. First-Line Supervision — Proportion of Tuition Paid. 28

41. First-Line Supervision — Maximum Amount of Tuition Paid Per Year. 28

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE GAS AND ELECTRIC UTILITIES INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Grøater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 184 managers and supervisors from 12 companies in the Gas and Electric Utilities industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed, six were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 12 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for 11 courses in the areas of general management and communication out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need 11 of the listed courses. (Page 10)

The educational level was good, with 45 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 17-20)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for eight out of 16 courses. (Page 22)

Twelve percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-27)

TOP MANAGEMENT

In the industrial category of Gas and Electric Utilities, 38 top managers from 12 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Working Effectively with Individuals and Groups . .	63
Communication in the Organization	58
Management Development.	55
Overall Strategy and Goals.	54
Managerial Motivation	53
Policy Formation.	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Working Effectively with Individuals and Groups	74
Effective Written Communications	71
Performance Appraisal and Counseling Techniques	70
Effective Speaking	68
Listening Skills	66
Communication in the Organization	64
Management Development	61
Managerial Motivation	61
Improving Decision Making of Managers	57
Human Aspect of Management	56
Effective Reading Skills	53
Fundamentals of Financial Reporting and Statement Analysis	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=37)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Overall Strategy and Goals . . .	54	73	38
Policy Formation	51	73	41
Long-range Planning and Forecasting for Corporate Growth .	43	81	35
Industrial Organization and Administration	42	92	47
Impact of Government Legislation and Controls on Business . . .	35	65	46
Improving Decision Making of Managers	34	80	57
Effective Utilization of Manpower Resources and Allocation	34	71	49
Impact of Computer Technology. .	34	71	43
Management Reporting Systems . .	33	66	44
Impact of Science and Technology on Business Management	31	68	37
Managing Major Change in Organizations.	26	70	29
Ethical Considerations in Business	23	60	29
Management of Research and Development.	6	39	9
Impact of Multinational Aspects of Planning and Control. . . .	0	3	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=36)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Effectively with Individuals and Groups	63	89	74
Communication in the Organization	58	83	64
Managerial Motivation.	53	86	61
Human Aspect of Management . . .	42	75	56
Political, Social, and Cultural Trends and Their Impact on Business Management.	30	57	27
Creativity and Innovation. . . .	27	63	45

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=37)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Written Communications	49	66	71
Effective Reading Skills	47	63	53
Listening Skills	46	83	66
Effective Speaking	46	76	68

TABLE 4

ECONOMICS
(N=35)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends.	26	57	20
Comparative Economic Systems . .	7	30	20

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=33)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	21	36	27
Survey Course on Quantitative Methods.	16	47	25

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=33)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management Development	55	82	61
Personnel Policy Affecting Labor-Management Relations . .	39	65	32
Personnel Policy Affecting Employment Practices	39	65	29
Performance Appraisal and Counseling Techniques.	36	78	70
Personnel Policy Affecting Wage and Salary Structure	28	62	28
Criteria and Selection of Personnel.	27	72	36
Incentives	27	64	33

TABLE 7

FINANCIAL MANAGEMENT
(N=33)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	44	66	50
Managerial Accounting and Budgeting.	31	59	38
Financial Planning and Forecasting.	30	63	33
Capital Budgeting.	25	66	34

TABLE 8

MANUFACTURING AND PRODUCTION
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning and Utilization of Physical Facilities.	29	54	43
Operations Planning and Control.	12	40	32
Operations Research Applied to Production	4	29	25

TABLE 9

MARKETING
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	25	36	21
Pricing.	21	25	17
Product Planning	13	26	17
Logistics Planning	13	25	17

INTERNATIONAL MANAGEMENT
(N=22)

None of the top managers indicated a "Should Have" need for themselves or for those they supervise for the two courses in International Management. A few of the managers indicated they "Could Use" these courses: International Understanding, 18 percent, and International Economic Analysis, ten percent.

MIDDLE MANAGEMENT

In the industrial category of Gas and Electric Utilities, 62 middle managers from 12 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive dutires in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Management Development	70
Working Efficiently with Individuals	70
Effective Communication in the Organization	65
Listening Skills	63
Effective Reading Skills	55
Performance Appraisal and Counseling Techniques	54
Supervisory Training and Employee Development	54
Criteria and Selection of Personnel for Promotion	53
Business Letter Writing	52
Conference Leadership	50
Effective Report Writing	50

Fifty percent or more of the middle managers thought those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Effective Report Writing.	72
Working Efficiently with Individuals.	70
Listening Skills.	69
Supervisory Training and Employee Development . . .	67
Oral Presentation of Reports.	66
Effective Communication in the Organization	65
Business Letter Writing	63
Effective Reading Skills.	58
Conference Leadership	57
Management Development.	55
Performance Appraisal and Counseling Techniques . .	51

The following tables, 10 through 15, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Gas and Electric Utilities industry.

TABLE 10

GENERAL MANAGEMENT
(N=62)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals.	70	95	70
Management Development	70	95	55
Performance Appraisal and Counseling Techniques.	54	86	51
Supervisory Training and Employee Development	54	80	67
Criteria and Selection of Personnel for Promotion. . . .	53	82	42
Impact of Government Legislation and Controls on Business . . .	35	68	38
Effective Utilization of Manpower Resources and Allocation	29	63	32
Analyzing Organizational Behavior	27	72	30
Long-range Planning and Forecasting for Corporate Growth .	26	67	26
Impact of Computer Technology. .	24	46	29
Principles and Analysis of Office Systems	21	55	28
Impact of Science and Technology on Business Management	20	53	16
The Application of Information Technology on Decision Making.	17	46	21

TABLE 11

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=61)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Human Aspect of Management . . .	42	81	46
Management Psychology.	34	81	29
Understanding Group Interaction and Behavior	32	81	44
Creativity and Innovation. . . .	28	71	33
Industrial Sociology	19	57	19
Impact of Consumer Behavior on Management	17	46	10
Social and Cultural Trends and Their Impact on Business Management	15	46	15

TABLE 12

COMMUNICATION
(N=62)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	65	92	65
Listening Skills	63	92	69
Effective Reading Skills	55	92	58
Business Letter Writing.	52	92	63
Effective Report Writing	50	87	72
Conference Leadership.	50	86	57
Oral Presentation of Reports . .	49	88	66

TABLE 13

ECONOMICS
(N=59)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Economics. . . .	25	69	46
Economic Trends.	21	62	26
The Economic Systems of the United States.	20	54	31
Economics of Production and Cost	14	45	21
Economics of Technology and Innovation	11	32	9
The Price Mechanism.	9	41	16
Comparative Economic Systems . .	5	38	21
International Economics.	0	13	7

TABLE 14

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=59)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Improving Decision Making of Managers	39	78	32
Statistical Decision Theory. . .	20	49	18
Replacement Management	19	52	16
Applying Program Evaluation and Review Techniques (PERT) . . .	18	48	26
Review of Basic Mathematics. . .	16	41	40
Statistical Procedures and Methods.	11	36	25
Inventory Management	9	34	16
Linear Programming	7	31	11
Probability Theory	7	28	16
Dynamic Programming.	7	27	9
Waiting Lines.	5	23	7
Calculus of Infinite Series. . .	5	16	9
Calculus of Finite Differences .	5	16	7
Matrix Algebra	5	10	9
Analytic Geometry.	4	20	16

TABLE 15

COMPUTER OPERATIONS AND DATA PROCESSING
(N=58)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Data Systems and Processing. . .	14	46	25
Fundamentals of Programming for Computer Operations.	12	45	28
Applying the Computer to Problems of Business and Management	11	53	26
Mathematics for Digital Computers.	11	25	20

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

The following tables, 16 through 22, show the responses for these special fields of work:

TABLE 16

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=28)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
In-plant Training.	57	79	57
Job Analysis and Job Evaluation Methods.	48	74	35
Management and Labor Relations .	48	65	39
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	32	68	32
Maintaining Efficient and Up-To-Date Personnel Records	29	53	29
Salary and Wage Administration .	24	53	19
Employee Benefit Plans	24	48	33
Industrial Safety and Medical Services	23	55	27

TABLE 17

FINANCIAL MANAGEMENT
(N=22)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	43	86	38
Fundamentals of Financial Reporting and Statement Analysis	43	72	24
Managerial Accounting.	38	71	19
Financial Planning and Forecasting.	27	72	23
New Developments in Equipment Replacement Policy	24	57	14
Taxes.	19	52	19

TABLE 18

MANUFACTURING AND PRODUCTION
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Engineering Economy.	22	55	28
Maintenance Planning and Control	13	51	25
Methods Analysis and Work Simplification	13	44	13
Production Planning and Control Management	11	44	11
Value Analysis	11	33	6
Organization and Management of Purchasing Operations.	7	27	7
Materials Handling	6	37	13
Automation	0	38	6
Quality Control.	0	21	7
Inventory Management	0	20	0

TABLE 19

MARKETING
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Management	20	53	33
Fundamentals of Marketing	20	47	47
Marketing Research	20	33	13
Product Planning	14	28	14
Application of Management Science and Computers to Marketing Problems	7	27	13
Fundamentals of Pricing	0	29	7
Brand Marketing	0	21	7
Physical Distribution Methods	0	14	7
Packaging Design and Development	0	7	7

TABLE 20

SALES MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Selection and Evaluation of Field Salesmen	39	50	33
Motivating Salesmen	37	69	32
Supervision of Field Salesmen	33	50	44
Training of Field Salesmen	28	39	33
Compensation of Field Salesmen	12	36	12

TABLE 21

INTERNATIONAL MANAGEMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Monetary Exchange Problems . . .	9	27	18
International Understanding. . .	9	27	18
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	9	27	18
United States Foreign Economic Policy	9	27	9
International Economic Organizations.	9	18	18
International Economic Analysis.	9	18	18
Sources of Funds: Financing of Day-to-Day Transactions. . . .	0	17	8
Commercial Policy and Trade Control.	0	9	0
International Law.	0	9	0
Appraising and Developing Foreign Markets.	0	8	8

TABLE 22

RESEARCH AND DEVELOPMENT
(N=12)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning Budgeting and Control of Projects.	9	45	18
Guidelines for Selecting and Appraising New Projects. . . .	9	36	9
Supervision and Management of Research Services.	9	27	18
Building Research and Development Teams	9	27	18
Evaluation of the Research and Development Programs	8	33	25

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-seven percent (N=16) of the 62 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Eighty-nine percent (N=55) had completed high school, 45 percent (N=28) had the bachelor's degree, and five percent (N=3) had the master's degree. No one had the doctorate. Eighteen percent (N=11) went to business school and six percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 23

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's	Number Master's
Business Administration.	8	1
Education.	1	0
Engineering.	14	2
Liberal Arts	2	0
Mineral Industries	2	0
Other (not specified).	1	0
Total	28	3

The major areas of work for the middle managers in the Gas and Electric Utilities industry are shown below:

TABLE 24

MAJOR AREAS OF WORK

	Number Managers	Percent Managers
Administration	28	45
Engineering.	7	11
Finance.	3	5
Industrial Relations	4	7
Maintenance.	2	3
Marketing and Sales.	11	18
Purchasing and Procurement	1	2
Traffic and Transportation	1	2
Other (not specified).	4	7
Total	61	100

Methods of Updating

Fifty-one percent (N=30) of the middle managers would take a credit course and 73 percent (N=45) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. Three planned to enroll: one for the bachelor's degree and two for the master's. Two planned to study business administration and one planned to study law.

Seventy-nine percent had no plans for further degree work and their reasons are given below:

TABLE 25

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Don't have the time.	17	36
Live too far from educational center	8	16
Job demands no more education.	5	10
Not a high school graduate	4	8
Not interested	3	6
Can do better on my own.	1	2
Other (not specified).	11	22
Total	49	100

The variety of educational methods used by middle managers for updating within the past four years is shown below:

TABLE 26

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=62)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics . .	51	82
Managerial development within company.	45	73
Company in-service training courses.	36	58
Attendance at regional or national meetings of professional societies.	35	56
Short refresher courses at colleges or universities	12	19
Correspondence courses	10	16
Workshops or seminars in liberal arts or humanities	4	6
Television courses	4	6
High school courses.	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 27 lists these sources.

TABLE 27

SOURCES OF INFORMATION USED IN UPDATING
(N=62)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	68	27	5	0	0
Subordinate-superior discussions or meetings	65	30	2	0	3
In-plant reports and bulletins	63	29	2	3	3
Business reports	43	38	15	2	2
Management journals	32	57	6	0	5
Lectures, conferences, workshops, and seminars	32	56	6	3	3
Manufacturer's literature	32	45	15	8	0
Company in-service courses	26	36	16	11	11
Scientific and technical journals	17	43	22	16	2
Professional society meetings	14	35	29	19	3
Technical books, reports, abstracts, and indexes	8	50	32	10	0
Use of consultants	5	26	31	38	0
College and university evening courses	0	12	11	66	11
College and university day courses	0	4	4	90	2

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 28)

TABLE 28

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=62)

	Number Managers	Percent Managers
Correspondence courses	28	45
Educational television	27	44
Programmed instruction	24	39
Courses recorded on records	8	13
Courses recorded on tapes	5	8
Two-way radio courses	2	3
Two-way telephone courses	1	2

Company Attitudes Toward Education

Of the 60 managers responding to a question on the attitude of their immediate superior toward continuing their education, 52 percent (N=31) said the superior encouraged them and 48 percent (N=29) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 29

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=61)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses	95	0	0	5
Attend professional meetings	90	7	0	3
Hold office in professional societies	83	14	0	3
Enroll for advanced work	77	7	0	16
Attend seminars or workshops away from the company	76	10	0	14
Write technical and professional papers	68	16	0	16
Educational leave of absence	16	17	14	53

Eighty-seven percent of the middle managers indicated that they were employed by companies which provided in-service training; 11 percent were not, and two percent did not know. Fifty-nine percent said the training was entirely on company time, 34 percent said it was partly on company time, two percent said it was not on company time, and five percent did not know.

Ninety-eight percent reported that their company had an educational assistance plan and two percent said it did not. Seventy-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below:

TABLE 30

PROPORTION OF TUITION PAID

	Number Managers
All or almost all	14
About 3/4	1
About 2/3	1
About 1/2	42
About 1/3	0
Less than 1/3	0
Don't know	1
Total	59

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 31

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Managers
More than $300	21
251 - 300	0
201 - 250	1
151 - 200	5
101 - 150	0
51 - 100	1
50 or less	0
Don't know	30
Total	58

When asked about the effect of available company educational assistance in motivating them to undertake further education, 28 percent of the middle managers said it had strongly encouraged them, 32 percent said it had partially influenced them, and 40 percent said it had no effect. There is an inconsistency here: while 60 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and only three were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Gas and Electric Utilities, 84 first-line supervisors from 12 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 84 first-line supervisors in the category of Gas and Electric Utilities were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	"Should Have" Percent
Fundamentals of the Supervisor's Job	70
The Tools and Techniques of Effective Supervision	64
Leadership	61
Decision Making	59
Communications	56
Safety	56
Human Aspect of Management	53
Supervisor's Role in Employee Discipline	52

Table 32 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 32

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=83)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job	58	70	77	93
The Tools and Techniques of Effective Supervision	52	64	72	89
Decision Making	48	59	75	92
Supervisor's Role in Employee Discipline	42	52	68	84
Supervisor's Role in Company Economics	39	48	68	83
Inter-Departmental Cooperation	37	46	65	81
Employee Training and Evaluation				
Safety	45	56	69	86
Evaluation of Employee Performance	33	42	65	83
Employee Training	33	41	65	81
The Supervisor and the Union				
Labor Relations	31	38	61	75
Grievance Procedure and Arbitration	30	37	60	74
Labor Relations Legislation	12	15	36	46
Developing Those We Supervise				
Leadership	50	61	73	89
Communications	46	56	72	88
Human Aspect of Management	43	53	77	95
Developing the Work Team	33	41	67	83

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Twenty-nine percent (N=25) of the first-line supervisors were 40 years of age or younger. Seventy-five percent (N=62) were high school graduates, 12 percent (N=10) had the bachelor's degree, and no one had the master's degree or the doctorate. Seven percent (N=6) had gone to business school and 15 percent (N=13) to trade school. The major fields of study for the bachelor's degree are indicated in the following table:

TABLE 33

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	Number Bachelor's
Agriculture	1
Business Administration	2
Education	1
Engineering	5
Psychology	1
Total	10

Below is a listing of the major areas of work for the first-line supervisors in Gas and Electric Utilities industry:

TABLE 34

MAJOR AREAS OF WORK

	Number Supervisors	Percent Supervisors
Administration	16	20
Engineering	4	5
Finance	5	6
Industrial Relations	1	1
Maintenance	24	30
Marketing and Sales	1	1
Production Control - Records	1	1
Research and Development	1	1
Service (yard and labor personnel, etc.)	13	16
Other (not specified)	15	19
Total	81	100

Methods of Updating

Forty-six percent (N=37) of the first-line supervisors would take a credit course and 73 percent (N=59) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for an associate degree. Four planned to enroll, one for the associate degree and three for the bachelor's. The major fields of study reported were: three in business administration, one in engineering, and two in another field which was not specified.

For the 71 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time.	19	27
Not a high school graduate	11	15
Live too far from educational center . .	10	14
Cannot afford it	6	8
Not interested	3	4
Job demands no more education.	2	3
Can do better on my own.	1	2
Other (not specified).	19	27
Total	71	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=84)

	Number Supervisors	Percent Supervisors
Workshops or seminars on managerial topics	47	56
Company in-service training courses. . .	44	52
Managerial development within company. .	37	44
Attendance at regional or national meetings of professional societies . .	22	26
Correspondence courses	17	20
Short refresher courses at colleges or universities.	8	10
High school courses to improve job performance.	6	7
Television courses	5	6
Workshops or seminars in liberal arts or humanities	4	5

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING (N=76)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	73	20	3	3	1
In-plant reports and bulletins	57	33	0	6	4
Subordinate-superior discussions or meetings	45	37	11	4	3
Manufacturer's literature	29	53	8	10	0
Company in-service courses	25	40	9	10	16
Lectures, conferences, workshops, and seminars	23	39	19	6	13
Management journals	20	49	16	12	3
Scientific and technical journals	14	38	23	19	6
Technical books, reports, abstracts, and indexes	13	46	21	16	4
Business reports	11	45	20	21	3
Use of consultants	7	26	21	42	4
College and university evening courses	6	6	2	75	11
Professional society meetings	3	25	23	42	7
College and university day courses	0	3	8	84	5

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=84)

	Number Supervisors	Percent Supervisors
Correspondence courses	42	50
Programmed instruction	29	35
Educational television	22	26
Courses recorded on records.	12	14
Courses recorded on tapes.	11	13
Two-way radio courses.	5	6
Two-way telephone courses.	4	5
Other (not specified).	5	6

Company Attitudes Toward Education

A total of 82 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty percent (N=41) said the superior encouraged them; 49 percent (N=40) said he was noncommittal, and one percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=73)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend company training courses.	97	0	0	3
Attend professional meetings	83	3	0	14
Hold office in professional societies.	79	4	1	16
Enroll for advanced work . .	77	5	0	18
Attend seminars or workshops away from the company.	74	7	0	19
Write technical and professional papers. . . .	54	6	1	39
Educational leave of absence.	11	10	1	78

Seventy-nine percent of the supervisors were employed by companies which provided in-service training; 20 percent said their company did not provide it and one percent did not know. Fifty-four percent said the training was completely on company time, 29 percent said it was partly on company time, 13 percent said it was entirely on the men's own time, and four percent did not know.

Ninety-three percent reported that their company had an educational assistance plan; six percent said it did not, and one percent did not know. Seventy-seven percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	Number Supervisors
All or almost all	16
About 3/4	0
About 2/3	1
About 1/2	47
About 1/3	0
Less than 1/3	0
Don't know	5
Total	69

Table 41 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 41

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	Number Supervisors
More than $300	20
251 - 300	2
201 - 250	0
151 - 200	3
101 - 150	1
51 - 100	0
50 or less	0
Don't know	41
Total	67

When asked what the effect of available financial assistance was on their motivation to undertake further education, 32 percent of the supervisors said it strongly encouraged them, 38 percent said it partially influenced them, and 30 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 70 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 84 respondents were actually enrolled and four were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN GAS AND ELECTRIC UTILITIES INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Gas and Electric Utilities as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were relatively higher and more numerous.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	"Should Have" Percent	
	Gas and Electric Utilities N=38	Total Report N=705
Working Effectively with Individuals and Groups. . . .	63	*
Communication in the Organization.	58	59
Management Development	55	53
Overall Strategy and Goals	54	50
Managerial Motivation.	53	*
Policy Formation	51	*
Effective Speaking	*	50
Effective Written Communications	*	50
Long-range Planning and Forecasting for Corporate Growth	*	50

* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	"Subordinates' Needs" Percent	
	Gas and Electric Utilities N=38	Total Report N=705
Working Effectively with Individuals and Groups. . . .	74	66
Effective Written Communications	71	74
Performance Appraisal and Counseling Techniques. . . .	70	57
Effective Speaking	68	67
Listening Skills	66	62
Communication in the Organization.	64	65
Management Development	61	56
Managerial Motivation.	61	*
Improving Decision Making of Managers.	57	54
Human Aspect of Management	56	54
Effective Reading Skills	53	62
Fundamentals of Financial Reporting and Statement Analysis	50	*

* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Gas and Electric Utilities and in the total report indicated a "Should Have" need for the following:

	"Should Have" Percent	
	Gas and Electric Utilities N=62	Total Report N=1,202
Management Development	70	66
Working Efficiently with Individuals	70	65
Effective Communication in the Organization.	65	64
Listening Skills	63	*
Effective Reading Skills	55	*
Supervisory Training and Employee Development.	54	53
Performance Appraisal and Counseling Techniques. . . .	54	*
Criteria and Selection of Personnel for Promotion . .	53	*
Business Letter Writing.	52	*
Conference Leadership.	50	*
Effective Report Writing	50	*

* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	"Subordinates' Needs" Percent	
	Gas and Electric Utilities N=62	Total Report N=1,202
Effective Report Writing	72	*
Working Efficiently with Individuals	70	62
Listening Skills	69	50
Supervisory Training and Employee Development	67	61
Oral Presentation of Reports	66	*
Effective Communication in the Organization	65	56
Business Letter Writing	63	*
Effective Reading Skills	58	*
Conference Leadership	57	*
Management Development	55	*
Performance Appraisal and Counseling Techniques	51	*

* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they needed the following of a listing of 16 subjects:

	"Should Have" Percent	
	Gas and Electric Utilities N=84	Total Report N=1,713
Fundamentals of the Supervisor's Job	70	64
The Tools and Techniques of Effective Supervision	64	55
Leadership	61	57
Decision Making	59	54
Communications	56	51
Safety	56	*
Human Aspect of Management	53	53
Supervisor's Role in Employee Discipline	52	*

* Less than 50 percent

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63	Banks
M-64	Chemical, Rubber, and Plastic Products
M-65	Construction
M-66	Department Stores
M-67	Electrical Machinery
M-68	Fabricated Metal Products
M-69	Food and Kindred Products
M-70	Insurance
M-71	Machinery (Except Electrical)
M-72	Petroleum Refining
M-73	Primary Metals
M-74	Professional, Scientific, and Controlling Instruments
M-75	Railroads
M-76	Stone, Clay, and Glass Products
M-77	Telephone and Telegraph
M-78	Transportation
M-79	Transportation Equipment
M-80	Gas and Electric Utilities
M-81	Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1	Chemical
E-2	Civil
E-3	Electrical-Electronics
E-4	Electrical-Power
E-5	Engineering-General
E-6	Industrial
E-7	Mechanical
E-8	Metallurgical
E-9	Mining

Industrial Groups:

E-10	Aircraft, Motors, and Parts
E-11	Chemical and Allied
E-12	Electrical Machinery and Equipment
E-13	Machinery
E-14	Mining
E-15	Paper and Allied
E-16	Petroleum Refining
E-17	Primary Metals
E-18	Professional, Scientific, and Controlling Instruments
E-19	Research and Consulting Laboratories
E-20	Transportation
E-21	Electric Utilities
E-22	Gas Utilities
E-23	Telephone and Telegraph
E-24	Water Utilities
E-53	Construction
E-25	State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

H-54	Hospital Administrators
H-55	Nursing Service and Nursing Education
H-56	Supervisory Personnel in the Dietary Department
H-57	Supervisory Personnel in the Engineering and Maintenance Department
H-58	Supervisory Personnel in the Business Office and Purchasing Department
H-59	Supervisory Personnel in the Medical Records Department
H-60	Supervisory Personnel in the Institutional Care Departments
H-61	Personnel Directors
H-62	Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

AC00 3500

ED025701

MANAGERIAL AND SUPERVISORY EDUCATIONAL EDS IN THE APPAREL, TEXTILES, AND LEATHER INDUSTRY IN PENNSYLVANIA

THE PENNSYLVANIA STATE UNIVERSITY
CONTINUING EDUCATION

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE APPAREL, TEXTILES, AND LEATHER INDUSTRY IN PENNSYLVANIA

M-81

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed. D.

Copyright The Pennsylvania State University

1968

TABLE OF CONTENTS

PAGE

INTRODUCTION 1

SURVEY PROCEDURES. 2

SUMMARY. 2

Top Management. 2
Middle Management 2
First-Line Supervision. 3

TOP MANAGEMENT 3

Educational Needs Within Areas of Managerial Responsibility . . . 3

MIDDLE MANAGEMENT. 8

Educational Needs Within Areas of Managerial Responsibility . . . 8
Background Information of Middle Managers 16

Personal, Educational, and Professional Background 16
Methods of Updating. 16
Company Attitudes Toward Education 18

FIRST-LINE SUPERVISION 19

Educational Needs 19
Background Information of First-Line Supervisors. 20

Personal, Educational, and Professional Background 20
Methods of Updating. 21
Company Attitudes Toward Education 23

RECOMMENDATIONS. 24

For the University. 24
For Business and Industry 24
For the Individual Manager and Supervisor 25
For Professional Associations 25

LIST OF TABLES

PAGE

1. Top Management — General Management. 4
2. Top Management — Behavioral Science and Management 5
3. Top Management — Communications Techniques 5
4. Top Management — Economics 5
5. Top Management — Quantitative Methods Applied to Business and Industry. 6
6. Top Management — Industrial Relations and Personnel Management. 6
7. Top Management — Financial Management. 6
8. Top Management — Manufacturing and Production. 7
9. Top Management — Marketing 7
10. Middle Management — General Management 9
11. Middle Management — Behavioral Science and Management. 9
12. Middle Management — Communication. 10
13. Middle Management — Economics. 10
14. Middle Management — Quantitative Methods Applied to Business and Industry. 11
15. Middle Management — Computer Operations and Data Processing. . 11
16. Middle Management — Industrial Relations and Personnel Management. 12
17. Middle Management — Financial Management 13
18. Middle Management — Manufacturing and Production 13
19. Middle Management — Marketing. 14
20. Middle Management — Sales Management 14
21. Middle Management — International Management 15
22. Middle Management — Research and Development 15

PAGE

23. Middle Management — Reasons for Not Undertaking Additional Formal Education. 16

24. Middle Management — Educational Methods Used for Updating Within the Past Four Years. 17

25. Middle Management — Sources of Information Used in Updating. . 17

26. Middle Management — Preference for Media of Course Presentation. 18

27. Managers' Perception of Company Policy Toward Professional Development 18

28. First-Line Supervision Training Needs 20

29. First-Line Supervision — Reasons for Not Undertaking Additional Formal Education 21

30. First-Line Supervision — Educational Methods Used for Updating Within the Past Four Years 21

31. First-Line Supervision — Sources of Information Used in Updating. 22

32. First-Line Supervision — Preference for Media of Course Presentation. 23

33. Supervisors' Perception of Company Policy Toward Professional Development 23

MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE APPAREL, TEXTILES, AND LEATHER INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.

2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.

3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.

4. There is a need for greater emphasis on long-range planning.

5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.

6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.

7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.

8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

SURVEY PROCEDURES

This report is a specific segment of a larger study,* and is based on responses from 74 managers and supervisors from 17 companies in the Apparel, Textiles, and Leather industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

SUMMARY

Top Management

Of 48 courses listed six were checked by 50 percent of more of the top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of the top managers said 11 courses were needed. (Page 4)

Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for three of the 54 listed courses. (Page 8)

None of the listed courses was thought by middle management to be needed by those they supervise to the extent of 50 percent or above.

Twenty-two percent of the middle managers had the bachelor's degree. They had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-18)

---

* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for three of the 16 courses. (Page 19)

One supervisor had the bachelor's degree in liberal arts and one had the master's degree in business administration. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education.(Pages 20-23)

TOP MANAGEMENT

In the industrial category of Apparel, Textiles, and Leather, 20 top managers from 17 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

Top managers were asked to indicate which of 48 suggested courses they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise. The courses were in the following areas of managerial responsibility:

General Management (14 subjects)
Behavioral Science and Management (6 subjects)
Communications Techniques (4 subjects)
Economics (2 subjects)
Quantitative Methods Applied to Business and Industry (2 subjects)
Industrial Relations and Personnel Management (7 subjects)
Financial Management (4 subjects)
Manufacturing and Production (3 subjects)
Marketing (4 subjects)
International Management (2 subjects)

The courses for which the 20 top managers indicated a "Should Have" need of 50 percent or more were:

	"Should Have" Percent
Communication in the Organization.	72
Managerial Motivation	68
Working Effectively with Individuals and Groups	63
Incentives.	58
Management Development.	53
Fundamentals of Financial Reporting and Statement Analysis. .	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	"Subordinates' Needs" Percent
Management Development	82
Human Aspect of Management	68
Working Effectively with Individuals and Groups	68
Communication in the Organization	67
Managerial Motivation	63
Criteria and Selection of Personnel	53
Effective Utilization of Manpower Resources and Allocation	53
Listening Skills	53
Performance Appraisal and Counseling Techniques	53
Effective Speaking	50
Personnel Policy Affecting Employment Practices	50

Tables 1 through 9 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT
(N=20)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Industrial Organization and Administration	47	89	32
Overall Strategy and Goals	45	80	20
Management Reporting Systems	40	80	25
Long-range Planning and Forecasting for Corporate Growth	40	80	10
Effective Utilization of Manpower Resources and Allocation	40	67	53
Improving Decision Making of Managers	37	84	47
Policy Formation	37	79	42
Ethical Considerations in Business	32	58	21
Managing Major Change in Organizations	25	63	25
Impact of Computer Technology	21	58	26
Impact of Science and Technology on Business Management	20	55	20
Management of Research and Development	19	56	19
Impact of Government Legislation and Controls on Business	15	30	5
Impact of Multinational Aspects of Planning and Control	12	12	12

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Communication in the Organization	72	100	67
Managerial Motivation	68	95	63
Working Effectively with Individuals and Groups	63	95	68
Human Aspect of Management . . .	37	84	68
Creativity and Innovation . . .	11	67	22
Political, Social, and Cultural Trends and Their Impact on Business Management	6	19	13

TABLE 3

COMMUNICATIONS TECHNIQUES
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Speaking	44	78	50
Effective Written Communications	33	67	44
Listening Skills	32	63	53
Effective Reading Skills	24	53	29

TABLE 4

ECONOMICS
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economic Trends	12	47	6
Comparative Economic Systems . .	6	17	17

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Statistical Decision Theory. . .	12	65	12
Survey Course on Quantitative Methods.	6	44	22

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=14)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Incentives	58	89	32
Management Development	53	88	82
Criteria and Selection of Personnel.	47	68	53
Personnel Policy Affecting Labor-Management Relations . .	35	80	35
Personnel Policy Affecting Wage and Salary Structure	35	70	30
Personnel Policy Affecting Employment Practices	28	67	50
Performance Appraisal and Counseling Techniques.	26	68	53

TABLE 7

FINANCIAL MANAGEMENT
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Fundamentals of Financial Reporting and Statement Analysis	50	61	11
Financial Planning and Forecasting.	47	88	12
Managerial Accounting and Budgeting.	39	61	22
Capital Budgeting.	28	72	6

TABLE 8

MANUFACTURING AND PRODUCTION
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Operations Planning and Control.	39	94	39
Planning and Utilization of Physical Facilities.	28	94	28
Operations Research Applied to Production	26	79	16

TABLE 9

MARKETING
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Pricing.	37	68	47
Marketing Research	35	65	24
Product Planning	33	67	39
Logistics Planning	18	29	18

INTERNATIONAL MANAGEMENT

No top managers reported that they "Should Have" either of the two courses included: International Understanding or International Economic Analysis. There was no need for these subjects on the part of those they supervise. Two managers (12 percent) reported that they "Could Use" a course in International Understanding.

MIDDLE MANAGEMENT

In the category of Apparel, Textiles, and Leather 23 middle managers from 17 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors." Middle managers indicated preferences for courses. They also included information on their personal, educational and professional background· methods of updating; and company attitudes toward education.

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)
Behavioral Science and Management (7 subjects)
Communication (7 subjects)
Economics (8 subjects)
Quantitative Methods Applied to Business and Industry (15 subjects)
Computer Operations and Data Processing (4 subjects)

Middle managers were asked to indicate which of these 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	"Should Have" Percent
Working Efficiently with Individuals	71
Effective Communication in the Organization	61
Management Development	61

For those they supervise, no middle managers reported a need for any of the courses as great as 50 percent. The highest needs reported were the following:

	"Subordinates' Needs" Percent
Working Efficiently with Individuals	38
Effective Utilization of Manpower Resources and Allocation	35
Supervisory Training and Employee Development	33

Tables 10 through 15 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Apparel, Textiles, and Leather category.

TABLE 10

GENERAL MANAGEMENT
(N=21)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Working Efficiently with Individuals.	71	100	38
Management Development	61	83	22
Supervisory Training and Employee Development	44	72	33
Criteria and Selection of Personnel for Promotion. . . .	44	56	11
Effective Utilization of Manpower Resources and Allocation	40	60	35
Performance Appraisal and Counseling Techniques.	39	72	28
Principles and Analysis of Office Systems	38	75	19
Long-range Planning and Forecasting for Corporate Growth .	29	53	18
The Application of Information Technology on Decision Making.	28	44	17
Impact of Science and Technology on Business Management	22	67	17
Impact of Government Legislation and Controls on Business . . .	22	50	17
Impact of Computer Technology. .	22	39	11
Analyzing Organizational Behavior	16	74	11

TABLE 11

BEHAVIORAL SCIENCE AND MANAGEMENT
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Understanding Group Interaction and Behavior	39	67	22
Creativity and Innovation. . . .	33	67	28
Human Aspect of Management . . .	33	67	17
Management Psychology.	22	67	6
Industrial Sociology	17	44	11
Social and Cultural Trends and Their Impact on Business Management	17	44	6
Impact of Consumer Behavior on Management	6	47	6

TABLE 12

COMMUNICATION
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Effective Communication in the Organization	61	72	11
Effective Reading Skills	42	63	21
Business Letter Writing	41	53	18
Conference Leadership	39	61	11
Oral Presentation of Reports	37	58	21
Listening Skills	28	89	28
Effective Report Writing	28	44	17

TABLE 13

ECONOMICS
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Economics of Production and Cost	39	67	22
The Price Mechanism	28	44	17
Economic Trends	11	44	6
Economics of Technology and Innovation	11	28	11
Fundamentals of Economics	11	28	0
Comparative Economic Systems	6	22	6
International Economics	6	22	6
The Economic Systems of the United States	0	17	6

TABLE 14

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY
(N=19)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Replacement Management	44	50	6
Inventory Management	33	67	22
Review of Basic Mathematics. . .	32	58	21
Statistical Decision Theory. . .	28	50	11
Improving Decision Making of Managers	22	44	11
Linear Programming	17	28	11
Applying Program Evaluation and Review Techniques (PERT) . . .	11	28	6
Statistical Procedures and Methods.	11	22	17
Probability Theory	11	17	17
Dynamic Programming.	11	11	11
Analytic Geometry.	6	17	6
Waiting Lines.	0	17	6
Calculus of Infinite Series. . .	0	6	6
Calculus of Finite Differences .	0	0	6
Matrix Algebra	0	0	6

TABLE 15

COMPUTER OPERATIONS AND DATA PROCESSING
(N=18)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Applying the Computer to Problems of Business and Management	39	50	17
Data Systems and Processing. . .	22	50	11
Fundamentals of Programming for Computer Operations.	17	39	17
Mathematics for Digital Computers.	6	22	11

If the middle manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special area of work. These were:

Industrial Relations and Personnel Management (8 subjects)
Financial Management (6 subjects)
Manufacturing and Production (10 subjects)
Marketing (9 subjects)
Sales Management (5 subjects)
International Management (10 subjects)
Research and Development (5 subjects)

Only a small number of managers reported that their major responsibilities were in the areas listed above. The following tables, 16 through 22, show the responses for these special areas of work:

TABLE 16

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT
(N=11)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Management and Labor Relations .	63	100	25
Job Analysis and Job Evaluation Methods.	63	63	25
In-plant Training.	50	75	13
Salary and Wage Administration .	38	75	13
Industrial Safety and Medical Services	38	50	13
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	36	91	9
Employee Benefit Plans	33	78	11
Maintaining Efficient and Up-to-Date Personnel Records. . .	33	67	22

TABLE 17

FINANCIAL MANAGEMENT
(N=10)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Budgets.	50	80	10
Fundamentals of Financial Reporting and Statement Analysis	50	70	20
New Developments in Equipment Replacement Policy	40	100	10
Managerial Accounting.	30	90	20
Taxes.	30	80	20
Financial Planning and Forecasting.	30	80	10

TABLE 18

MANUFACTURING AND PRODUCTION
(N=15)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Production Planning and Control Management	71	86	29
Methods Analysis and Work Simplification	50	93	36
Value Analysis	50	79	29
Maintenance Planning and Control.	43	64	21
Quality Control.	40	73	20
Materials Handling	38	92	31
Inventory Management	38	77	23
Automation	36	79	29
Organization and Management of Purchasing Operations.	31	77	15
Engineering Economy.	21	50	14

TABLE 19

MARKETING
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Marketing Research	33	67	17
Marketing Management	33	50	17
Fundamentals of Marketing. . . .	20	80	40
Product Planning	17	83	0
Brand Marketing.	17	67	17
Fundamentals of Pricing.	17	67	17
Physical Distribution Methods. .	17	50	17
Application of Management Science and Computers to Marketing Problems	0	17	17
Packaging Design and Development	0	17	17

TABLE 20

SALES MANAGEMENT
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Motivating Salesmen.	17	33	33
Compensation of Field Salesmen .	17	33	17
Selection and Evaluation of Field Salesmen	17	33	17
Supervision of Field Salesmen. .	17	17	17
Training of Field Salesmen . . .	0	33	17

TABLE 21

INTERNATIONAL MANAGEMENT
(N=6)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Appraising and Developing Foreign Markets.	17	33	17
International Economic Organizations.	0	33	17
International Understanding. . .	0	33	17
Commercial Policy and Trade Control.	0	17	17
Monetary Exchange Problems . . .	0	17	17
United States Foreign Economic Policy	0	17	17
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade	0	0	17
International Economic Analysis.	0	0	17
International Law.	0	0	17
Sources of Funds: Financing of Day-to-Day Transactions. . . .	0	0	17

TABLE 22

RESEARCH AND DEVELOPMENT
(N=7)

	"Should Have" Percent	"Should Have" and "Could Use" Percent	"Subordinates' Needs" Percent
Planning Budgeting and Control of Projects.	33	33	33
Supervision and Management of Research	29	57	29
Guidelines for Selecting and Appraising New Projects. . . .	17	50	33
Evaluation of the Research and Development Programs	17	50	17
Building Research and Development Teams.	17	17	17

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-two percent of the 23 middle managers in Apparel, Textiles, and Leather were 40 years of age or younger. Eighty-six percent had completed high school and 22 percent had the bachelor's degree. One person had the master's degree. Two persons had major fields of college study in each of the follwing fields: business administration, engineering, and liberal arts.

The major areas of work responsibility were: manufacturing (26 percent); administration (22 percent); and finance (13 percent).

Methods of Updating

Fifty-two percent (N-12) of the middle managers would take a credit course and 61 percent (N=14) would take a non-credit course if they were offered locally.

None of the managers was currently enrolled for a college degree. Three said they planned to enroll, one for the associate degree, one for the bachelor's and one for the master's. Two planned to enroll in business administration.

However, eighty-seven percent (N=20) had no plans to enroll for further formal education and their reasons follow:

TABLE 23

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Managers	Percent Managers
Job demands no more education.	4	20
Don't have the time.	3	15
Cannot afford it	3	15
Not a high school graduate	3	15
Not interested	3	15
Live too far from educational center	2	10
Other (not specified).	2	10
Total	20	100

The variety of educational methods used for updating within the past four years is shown below:

TABLE 24

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=23)

	Number Managers	Percent Managers
Workshops or seminars on managerial topics. .	7	30
Attendance at regional or national meetings of professional societies	5	22
Managerial development within company	3	13
Company in-service training courses	2	9

Many sources of information were used by the middle managers to keep up with new developments. Table 25 lists these sources.

TABLE 25

SOURCES OF INFORMATION USED IN UPDATING (N=19)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins. . .	74	13	13	0	0
Discussion with company personnel (informal or formal).	66	28	0	6	0
Subordinate-superior discussions or meetings	50	50	0	0	0
Manufacturer's literature	44	33	6	6	11
Scientific and technical journals .	29	18	18	29	6
Management journals	26	36	11	16	11
Technical books, reports, abstracts and indexes	24	24	18	34	0
Business reports.	21	52	16	11	0
Lectures, conferences, workshops, and seminars.	13	20	54	13	0
Use of consultants.	7	13	20	60	0
Professional society meetings . . .	7	7	33	53	0
Company in-service courses.	0	13	20	47	20
College and university evening courses	0	6	0	81	13
College and university day courses.	0	0	0	100	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 26

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=23)

	Number Managers	Percent Managers
Correspondence courses	10	44
Programmed instruction	9	39
Educational television	4	17
Courses recorded on records.	4	17
Courses recorded on tapes.	1	4

There was no demand for two-way telephone or radio courses.

Company Attitudes Toward Education

Of the 21 managers responding to a question on the attitude of their immediate superior toward continuing their education, 38 percent said he encouraged them while 62 percent said he was noncommittal.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities. (Table 27)

TABLE 27

MANAGERS' PERCEPTION OF COMPANY POLICY
TOWARD PROFESSIONAL DEVELOPMENT
(N=23)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	67	28	0	6
Attend company training courses.	60	20	0	20
Attend seminars or workshops away from the company.	59	24	6	12
Enroll for advanced work .	42	42	0	16
Write technical and professional papers. . .	40	40	0	20
Hold office in professional societies. . .	28	56	0	17
Educational leave of absence.	5	24	19	52

Only 26 percent of the middle managers reported that their company provided in-service training; 74 percent said that it did not. Seventy percent said that such training was completely on company time, 20 percent said it was partly on company time, and ten percent did not know.

Thirty percent of the managers reported that their company had an educational assistance plan for payment of tuition. Sixty-five percent said it did not and five percent did not know. Sixty-four percent said the course had to be job-related in order to qualify for financial assistance.

Only six middle managers replied to a question on the proportion of tuition which would be paid by the company. Four said that almost all of it would be paid, and two said that half would be paid. Two managers said that $300 or above was the maximum amount of assistance paid per year.

One manager said the availability of financial aid stongly encouraged him to undertake further education; one said that it partially influenced him, and four said it had no effect on their educational plans.

FIRST-LINE SUPERVISION

Thirty-one first-line supervisors from the 17 companies in the category of Apparel, Textiles, and Leather completed the questionnaire. First-line supervisors were defined as "those whose major responsibilities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The supervisors were asked to indicate which of the 16 courses they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	"Should Have" Percent
Fundamentals of the Supervisor's Job	58
The Tools and Techniques of Effective Supervision	52
Leadership	50

Table 28 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 28

FIRST-LINE SUPERVISION TRAINING NEEDS
(N=31)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
Principles of Supervision				
Fundamentals of the Supervisor's Job . . .	18	58	27	87
The Tools and Techniques of Effective Supervision.	15	52	26	90
Decision Making.	13	43	23	77
Supervisor's Role in Company Economics . .	11	35	24	77
Inter-Departmental Cooperation	10	33	25	83
Supervisor's Role in Employee Discipline .	10	33	23	77
Employee Training and Evaluation				
Safety	11	38	24	83
Employee Training	9	29	26	84
Evaluation of Employee Performance	7	23	24	77
The Supervisor and the Union				
Grievance Procedure and Arbitration. . . .	8	27	20	67
Labor Relations.	5	17	12	41
Labor Relations Legislation.	2	7	12	43
Developing Those We Supervise				
Leadership	15	50	28	93
Human Aspect of Management	10	32	30	97
Communications	8	27	20	67
Developing the Work Term	7	23	23	77

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty-five percent (N=14) of the first-line supervisors were 40 years of age or younger. Seventy-seven percent (N=23) had completed high school. One supervisor had the bachelor's degree in liberal arts and one had the master's degree in business administration. Two persons had gone to business school and six to trade school. The major field of work was manufacturing, 64 percent.

Methods of Updating

Thirty-nine percent (N=12) of the supervisors would take a credit course and 74 percent (N=23) would take a non-credit course if they were offered locally.

No supervisors were either enrolled or planning to enroll for a college degree.

The supervisors' reasons for not undertaking additional formal education are shown below:

TABLE 29

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	Number Supervisors	Percent Supervisors
Don't have the time.	7	28
Cannot afford it	6	24
Job demands no more education.	3	12
Not a high school graduate	3	12
Not interested	3	12
Live too far from educational center . .	1	4
Can do better on my own.	1	4
Other (not specified).	1	4
Total	25	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 30

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=31)

	Number Supervisors	Percent Supervisors
Workshops or seminars on managerial topics	8	26
Company in-service training courses. . .	3	10
Correspondence courses	3	10
Managerial development within company. .	2	6
High school courses.	1	3
Short refresher courses at colleges or universities	1	3
Attendance at regional or national meetings of professional societies . .	1	3
Workshops or seminars in liberal arts or humanities.	1	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 31

SOURCES OF INFORMATION USED IN UPDATING (N=25)

	Percent				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal)	68	28	0	4	0
In-plant reports and bulletins . . .	53	22	4	4	17
Subordinate-superior discussions or meetings.	49	43	4	4	0
Manufacturer's literature.	40	24	24	4	8
Business reports	29	21	25	21	4
Management journals.	28	36	8	20	8
Lectures, conferences, workshops, and seminars	14	45	14	18	9
Technical books, reports, abstracts, and indexes	14	19	14	39	14
Scientific and technical journals	10	19	24	42	5
Professional society meetings. . . .	9	13	22	52	4
Company in-service courses	5	23	5	32	35
Use of consultants	5	14	43	33	5
College and university day courses .	5	0	0	90	5
College and university evening courses.	0	0	5	81	14

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 32)

TABLE 32

PREFERENCE FOR MEDIA OF COURSE PRESENTATION
(N=31)

	Number Supervisors	Percent Supervisors
Correspondence courses	18	58
Programmed instruction	10	32
Courses recorded on records.	5	16
Educational television	4	13
Courses recorded on tapes	4	13
Two-way radio courses	1	3
Two-way telephone courses	1	3

Company Attitudes Toward Education

Twenty-seven supervisors responded to a question on the attitude of their immediate superior toward continuing education. Of these, 63 percent reported that their superior encouraged them and 37 percent said he was noncommittal.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in Table 33. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 33

SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT
(N=26)

	Encourages Percent	Noncommittal Percent	Discourages Percent	Do Not Know Percent
Attend professional meetings	71	5	5	19
Attend company training courses	65	10	0	25
Enroll for advanced work .	56	12	4	28
Attend seminars or workshops away from the company.	53	13	4	30
Hold office in professional societies .	40	30	0	30
Educational leave of absence	19	8	0	73
Write technical and professional papers. . .	10	40	0	50

RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

For the University

1. The need for additional training in the area of communications -- such subjects as report writing, effective speaking, conference leadership -- was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.

2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.

3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.

4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient location.

5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.

2. Companies should encourage their employees to take advantage of financial aid which is available for education.

3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.

5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.

6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service educational programs.

7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.

8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.

2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 ($2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 ($1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" ($1.00 each):

M-63 Banks
M-64 Chemical, Rubber, and Plastic Products
M-65 Construction
M-66 Department Stores
M-67 Electrical Machinery
M-68 Fabricated Metal Products
M-69 Food and Kindred Products
M-70 Insurance
M-71 Machinery (Except Electrical)
M-72 Petroleum Refining
M-73 Primary Metals
M-74 Professional, Scientific, and Controlling Instruments
M-75 Railroads
M-76 Stone, Clay, and Glass Products
M-77 Telephone and Telegraph
M-78 Transportation
M-79 Transportation Equipment
M-80 Gas and Electric Utilities
M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 ($3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas ($2.50 each):

Engineering Fields:

E-1 Chemical
E-2 Civil
E-3 Electrical-Electronics
E-4 Electrical-Power
E-5 Engineering-General
E-6 Industrial
E-7 Mechanical
E-8 Metallurgical
E-9 Mining

Industrial Groups:

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 ($2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" ($.75 each):

Continuing Professional Educational Needs of:

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office
J. Orvis Keller Building
The Pennsylvania State University
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies
One Shields Building
The Pennsylvania State University
University Park, Pennsylvania 16802

[illegible]house
[illegible]
on Adult Educ..